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RECREATION PREFERENCES AND ATTITUDES TOWARD FOREST PLANNING ISSUES FOR NORTHERN COLORADO FRONT RANGE RESIDENTS

by

Alan D. Bright

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Department of Recreation Resources
Colorado State University

in cooperation with

Rocky Mountain Forest and Range Experiment Station
Research Work Unit No. 4851

June 1, 1993

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EXECUTIVE SUMMARY

The goal of this research effort was to identify the attitudes and preferences of Northern Front Range residents of Colorado regarding outdoor recreation in Colorado and natural resource management issues. To address this goal, the objectives of this research effort were to (a) determine the level, types, and location of recreational use, (b) determine preferences for and perceived availability of specific recreation facilities, (c) determine use and preferences for specific recreation settings, (d) determine the affiliation and involvement in environmental and recreational organizations, and (e) determine public attitudes toward and support for specific management strategies involving several natural resource management issues, as they relate to the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

Recreation use

Overall it was found that most of the residents of the Northern Front Range region participate in some form of outdoor recreation, primarily in the summer months, although many indicated significant participation during other parts of the year also. On average, individuals spend nearly six days per month engaging in some form of outdoor recreation, with the average trip length being about one and a half days, the approximate length of a weekend trip.

The most popular outdoor recreation activities fall under the category of nonconsumptive activities. Auto sightseeing, picnicking, camping, day hiking and viewing wildlife were the top five activities. Adventure activities such as canoeing/kayaking, rock climbing, mountain climbing, backpacking, and cross-country skiing were participated in by relatively few people. Although fishing is participated in by nearly half of the population, another consumptive activity, hunting, is participated in by less than one-sixth of the population.

One-third of the respondents reported generally taking day trips. Those people using special lodging during a trip reported using National Forest campgrounds more often than other types of lodging. Combining the various camping type lodgings, it appears that nearly half of the population camp on an outdoor recreation trip, with nearly two-thirds of these people using a tent as their primary shelter.

The most popular source of information regarding places to participate in outdoor recreation was friends and relatives. Brochures and guidebooks were also prevalent sources of information. Less than one-half of the population reported using a public agency office or the radio as a source of places to recreate in the outdoors.

The most popular places to recreate in the outdoors are areas relatively close to home. In this study, the Front Range region, where the sampled population was drawn from, was the most likely location for outdoor recreation. Northeast Colorado and West Central Colorado were also popular areas for outdoor recreation, as nearly one-half of the respondents indicated participating in outdoor recreation in these regions of the state.

Preference and availability of recreation facilities

Three distinct groups of recreationists were identified. These groups, based on the extent to which facilities were desired, included (a) a high facility dependent group, that is, those persons with preferences for many man-made facilities, (b) a moderate facility dependent group, persons desiring a moderate amount of facilities, and (c) a low facility dependent group, persons desiring few developed facilities.

The high facility dependent group showed a preference for all facilities except undeveloped campsites and group shelters. Most of the facilities desired by this group were also viewed as being readily available. The moderate facility dependent group showed a preference for both types of campsites, undeveloped and developed. Facilities which this group found undesirable were hot shower facilities, flush toilet facilities, and group shelters. Similar to the high facility dependent group, most of the facilities desired by this group were seen as being available by a large majority. The low facility dependent group showed preferences for the least number of facilities, most of which emphasized maintaining a natural focus to outdoor recreation, such as, scenic overlooks, nearby streams and lakes, and garbage cans and dumpsters. Nearly all of the facilities desired were viewed as being available by most of this group.

Overall it appears that, for all groups, the availability of the types of facilities they preferred was high. The most obvious exception to this statement concerns the availability of facilities enabling better access for visitors with disabilities. While this type of facility was desired by all three groups, all found it to be less available than the other facilities.

Use and preference of specific recreation settings

The most preferred recreation settings, in order, were the "primitive setting", "roaded natural", "semiprimitive nonmotorized", "semiprimitive motorized", and "rural" settings. These settings differed, however, in the extent to which those persons who most preferred a setting actually participated most in that setting. The "primitive" and "semiprimitive" settings were recreated in by few of those persons who indicated they generally recreate there. On the other hand, nearly all of those

persons who preferred a rural setting also recreated in this setting the most.

Several questions regarding how the public feels about Forest Service employees were also presented. For the most part, attitudes toward the Forest Service employees is positive. However, over one-half of those surveyed indicated that they seldom see Forest Service employees.

Affiliation and involvement in environmental and recreation organizations

Most of the surveyed population do not belong to any environmental or recreation groups. For those that do belong, the level of activism for the national groups appears fairly low. On the other hand, local environmental and recreation groups appears to have more active membership.

Public attitudes toward natural resource management issues on the ARNF and PNG

The natural resource management issues examined were motorized versus nonmotorized recreation, timber harvest, livestock grazing, unroaded areas, and old growth forests. All of these issues were relatively important to the sampled population. Attitudes and support for management strategies are summarized for each issue below.

Motorized versus nonmotorized recreation. The most positive attitude was for emphasizing nonmotorized recreation. Similarly, a significant majority supported this strategy given a choice between the two.

Timber harvest. Most of the sampled population believed that keeping timber harvest levels at current levels would be good, and that increasing timber harvest levels would be bad. The public was split evenly between positive and negative attitudes toward decreasing harvest to below current levels. Given a choice between the three strategies, most of those surveyed selected maintaining current harvest levels, while less than one in ten voted to increase harvest levels.

Livestock grazing. A relatively high proportion of the population had neutral attitudes toward the management strategies which involved continuing or decreasing grazing. About one-half of the population felt that eliminating grazing would be a bad strategy. A slight majority supported continuing current levels of grazing, while about one-third supported allowing less grazing.

Unroaded areas. A large majority of the surveyed population held a positive attitude toward leaving unroaded areas "as is",

whereas a nearly equally large majority felt that managing these areas for production would be bad. About one-half of the population held a positive attitude toward maintaining a balance between the two. Given a choice between the three strategies, The population was evenly split between supporting a strategy which called for leaving unroaded areas "as is" and maintaining a balance between protecting these areas and managing for production. Very few supported managing unroaded areas primarily for production.

Old-growth forests. A large majority of the population had positive attitudes toward managing old-growth forests for protection. Also, a majority of the population believed that managing old-growth forests primarily for timber harvest would be bad. Nearly one-half of the population had a positive attitude toward maintaining a balance between timber harvest and protection. Choosing between one of the three strategies, the public was evenly split between maintaining a balanced strategy and protecting the old-growth forests. Very few persons supported using old-growth forest primarily for timber harvest.

INTRODUCTION

Legislation in the mid 1970s introduced dramatic changes to federal public land planning and management. In particular, there has been increased emphasis placed on involving the public in the decision making process. As Tipple and Wellman (1989) note:

> "Today's public forest resource managers must not only grasp the current scientific and technical issues of the field; they must also possess a thorough understanding of the role the public is demanding in resource management, together with the skills to facilitate public participation (p. 24)."

The task of facilitating public participation has proven to be challenging for natural resource managers. There is a wide array of techniques available for soliciting public involvement and there is not one technique that is "best", rather, techniques vary in their advantages and disadvantages. The most frequently used method of public involvement, the public meeting, poses potential problems of representativeness. That is, these techniques may result in information which does not represent all publics who are affected by the management plan. This is true because public meetings are usually held in the vicinity of the area being planned. Also, meetings are typically attended only by those most affected by the plan. Therefore, managers should consider using a variety of methods in soliciting public involvement in the planning process.

The study reported here was conducted for managers of the Arapaho-Roosevelt National Forest (ARNF) who were in the process of revising their forest plan. Recognizing the limitations of using only one public involvement technique, the study was conducted in order to supplement other public involvement activities conducted by the ARNF and was to focus on residents of Northern Colorado's Front Range.

The goal of this research effort was to identify the residents' current recreational activities, recreational preferences, and attitudes toward forest planning issues. To address this goal, the objectives of this research effort were as follows.

1. To determine the level and types of recreational use, including where people residing in the Northern Front Range recreate in the outdoors in Colorado,

2. To determine preferences for and perceived availability of specific recreation facilities,

3. To determine use and preferences for specific

recreation settings,

4. To determine the affiliation and involvement in environmental and recreational organizations, and

5. To determine public attitudes toward and support for specific management strategies involving several natural resource management issues as they relate to the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

METHODS

Data for this study were collected using two separate instruments. Initial contact was made by contacting a random sample of residents of the Northern Front Range region by telephone. After obtaining preliminary information about outdoor recreation participation, a follow-up mail-back questionnaire, designed to obtain more extensive information, was sent to persons agreeing to complete it. The methods and research instruments utilized in this study were developed in research planning sessions between the Colorado State University Department of Recreation Resources and the Rocky Mountain Forest and Range Experiment Station.

Design of the Data Collection Instrument

The telephone survey. The purpose of the telephone survey (see appendix) was to obtain information regarding the level of outdoor recreation participation, in Colorado, of people along the Northern Front Range and to obtain subjects for the more extensive mail-back questionnaire.

During the telephone interview, subjects were asked (a) whether they participate in outdoor recreation, (b) what seasons of the year they are most active in outdoor recreation, (c) how many days of the month they participate in outdoor recreation during their most active season, and (d) what the length of a typical outdoor recreation trip is. After obtaining this information, subjects were asked if they would be willing to complete a longer mail-back questionnaire which would contain more in-depth information regarding their outdoor recreation activities and preferences and their attitudes toward various forest management issues. Names and addresses were taken for those persons agreeing to continue their involvement in the study.

The mail-back survey. There were six sections to the mail-back questionnaire. The purpose of this instrument (see appendix) was to obtain information regarding (a) the type of outdoor recreation activities engaged in, the lodging typically used, the sources of outdoor recreation information, and what parts of Colorado this participation takes place in, (b) the preferences and availability of specific recreation facilities, (c) preferences for and use of specific recreation settings, and attitudes toward Forest Service employees, (d) membership and involvement in environmental and recreation organizations, (e) attitudes toward management strategies concerning several forest management issues, and (f) socio-demographic characteristics of the subject population.

In section one, the outdoor activities participated in, where they are participated, and how they learned about places to

recreate were ascertained. To determine the types of outdoor recreation that the public participates in, subjects were asked to check outdoor recreation activities that they participated in at least once in the past 12 months. Selections were made from a list of 21 different activities. Following this, subjects were asked to check what type of lodging they typically use, and, if they generally stay in a campground, what type of shelter they use.

Subjects were then asked if they "frequently", "occasionally", or "never" used several specific sources of information regarding places to recreate in the outdoors. To determine the actual places that subjects visited for outdoor recreation, a map was provided which divided the state of Colorado into six zones (see page 85 in the appendix). For each zone, subjects were to mark whether or not they had visited an area in a specific zone for the purpose of outdoor recreation in the past 12 months, and how many times they had visited the zone.

In section two, the desirability and availability of specific recreation facilities were determined. Subjects were presented with a list of 18 recreation facilities. Subjects were asked if each facility was "extremely" or "moderately" desirable, "extremely" or "moderately" undesirable, or "neither" desirable or undesirable. Following this question, subjects were asked to rate, on a 6-point scale, how available they felt this facility was at locations they participate in outdoor recreation.

The purpose of section three of the mail-back questionnaire was to determine what types of recreation settings subjects (a) generally recreated in, and (b) preferred. These settings, rated by subjects, were based on the Recreation Opportunity Spectrum and included primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, and rural settings. Subjects were provided with a brief description and a sketch, provided by a Forest Service illustrator, of each setting (see page 88 in the appendix). Using a separate question for settings recreated in and settings preferred, subjects were asked to rank each setting on a scale of one through five, with one being the most used/preferred setting and five being the least used/preferred setting. Section three also ascertained public attitudes toward encountering Forest Service employees while recreating in the outdoors. To determine attitude toward Forest Service employees, subjects were asked, using a 5-point scale, the extent to which they "strongly" or "moderately" agreed/disagreed, or "neither".

Section four determined the public's involvement in environmental and recreation organizations. Subjects were asked if they belonged to any such organization. If they responded "yes", they were instructed to mark what organizations they belonged to from a list of seven organizations, given the opportunity to mark down organizations that were not listed.

They were then asked, on a five point scale, how active they were in these organizations.

The purpose of section five of the mail-back questionnaire was to ascertain the public's attitudes toward various forest management issues. After providing the public with a map showing them the location of the Arapaho and Roosevelt National Forests and Pawnee National Grassland, subjects were provided brief sets of information about five issues; (a) motorized vs nonmotorized recreation (see page 91 in appendix), (b) timber harvest (page 92), (c) livestock grazing (page 93), (d) unroaded areas (page 94), and (e) old-growth forests (page 95) on public lands.

The information referred to these issues in the context of the Arapaho and Roosevelt National Forests and Pawnee National Grassland. Included in this information was a brief description of the issue followed by three to five reasons why people believed a "productive" management strategy should be used regarding that issue, and three to five reasons why people believed that a management strategy emphasizing "leaving the resource alone" should be used. Following the information for each issue, subjects were asked a series of questions regarding their attitudes toward and support of strategies relating to each issue. First, subjects were asked to indicate, on a 5-point scale, how important that issue was to them.

To determine attitudes toward specific management strategies, subjects were asked whether following a specific management strategy would be "extremely" good or bad, "moderately" good or bad, or "neither". Three strategies were provided for four of the five issues; (a) a "productive" strategy, (b) a strategy emphasizing leaving the resource alone, and (c) a strategy emphasizing a balance between the two extreme strategies. There was no "balance" strategy used for the motorized/nonmotorized recreation issue. Attitudes were ascertained separately for each strategy.

Following the determination of attitudes toward strategies, subjects were asked to indicate which of the three strategies they would support. The last question for each issue involved subjects ranking the five most important statements, listed in the information portion of each issue, which determined their attitude toward that particular issue.

Finally, the purpose of section six was to gather socio-demographic information regarding the subjects. Information gathered were gender, age, race, education, employment type, household income, and size of community currently residing in.

Sampling procedures

The target population was residents of the Colorado Northern

Front Range region with Fort Collins and suburbs bordering on the north and the Denver metropolitan area to the south. A sample of telephone numbers was drawn from the 1991/1992 U.S. West telephone directories of all Front Range communities. Use of four directories; Fort Collins, Greeley, Boulder, and Denver and the surrounding areas for each respective city; allowed for the inclusion of all households in the target area. To insure that households with listed and unlisted telephone numbers were included, the last two digits of every number drawn were dropped and replaced with a computer generated random two-digit number before dialing. Phone calls were made mondays through thursdays from 6:00 pm until 9:00 pm. The phone number was discarded if, after the initial call and four callbacks, no contact was made.

Survey procedures

Prior to the start of telephone interviewing, the telephone interviewers were carefully briefed regarding how to conduct the phone interview in order to eliminate minimize interviewer bias. When subjects were reached on the telephone, the interviewer introduced him or herself to the respondent and asked if they would be willing to answer a few questions about outdoor recreation. At the end of the telephone interview, subjects were asked if they would be willing to complete a more extensive questionnaire which would be mailed to them. Names and addresses of those persons who agreed to participate in the second stage of the study were recorded.

Mail-back questionnaires were sent to respondents immediately after they agreed to continue on in the study. Included in the mailing along with the mail-back questionnaire were a postage-paid self-addressed return envelope and a United States Forest Service map of the Arapaho and Roosevelt National Forests, given as a memento of participation in the study. Follow-up procedures included a postcard, sent ten days after the initial mailing, reminding subjects of their promise to return a completed questionnaire. If, after ten more days, a questionnaire still had not been received from a respondent, another questionnaire was sent.

Data Analysis

Data were analyzed using SPSSPC+. In the first section of the study, descriptive information about the level and types of recreational use by the Front Range public were gathered.

The second section examined the preferences for and availability of outdoor recreation facilities. In analyzing the results, cluster analysis was performed, placing subjects into one of three groups based on the desirability of the recreation facilities. These groups were then examined as to the extent that they found desired facilities available when they

participate in outdoor recreation.

The third section, which addressed use and preference for specific recreation settings, was examined using a rank-order technique introduced by Leuschner, Gregoire, & Buhyoff (1988). This method of analysis develops weights for each available choice, the total of which sums to 100. Descriptive statistics were then used to determine what proportion of persons who preferred recreating in each setting actually recreated most in that setting, and what other settings they recreated in.

Finally, the fourth section of data analysis examined public attitudes toward natural resource management strategies. Descriptive statistics were used to examine the personal importance of the management issues, attitudes toward individual management strategies, and support for a specific strategy. Following this, the rank order method of analysis introduced by Leuschner, et al. (1988) was used to examine the importance of specific statements about each natural resource management issue separately. This method provides an interpretable relative ranking of options when the number of options available are greater than ranks asked for, as was the case in the ranking of statements regarding management strategies. Analysis of variance was performed to determine if groups supporting different strategies for the management issues placed significantly different importance to the pro and con statements for each issue.

RESULTS

Five-hundred and sixty persons were contacted by telephone and completed the telephone survey. Of these, 485 (86.6%) agreed to complete the mail-back survey. Of the 485 questionnaires mailed out, 365 (75.3%) usable questionnaires were returned. Only data from those persons who completed both the telephone survey and the mail-back questionnaire was used (65.2% of those originally completing the telephone survey; n = 365).

Prior to analyzing the results, the difference in outdoor recreation participation between persons who refused or failed to complete the mail-back questionnaire and persons who returned the questionnaire was examined. Consistent with previous research, persons who did not return the mail-back questionnaire were more likely to not participate in outdoor recreation than persons who did return the questionnaire. In this study, 88 percent of those who returned the mail questionnaire participate in outdoor recreation, whereas 76 percent of those not returning the questionnaire indicated they participate. This difference was found to be statistically significant. Therefore, it appears that persons who do not participate in outdoor recreation were less likely to return the mail-back questionnaire. As a result, this study is more representative of persons who participate in outdoor recreation than of the general population.

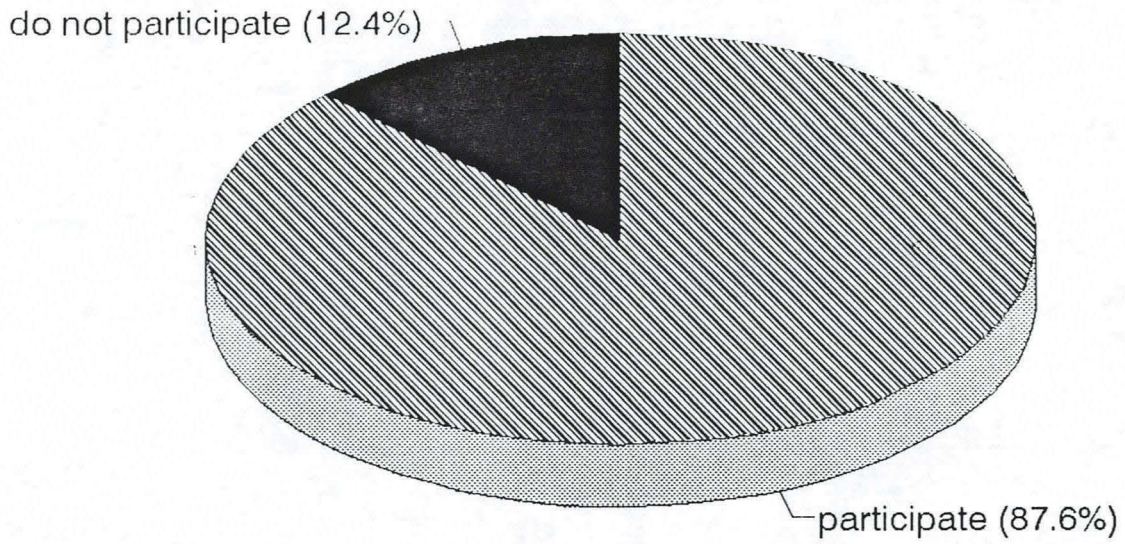
Level and Types of Recreational Use of the Front Range Public

This section describes the level of participation in outdoor recreation for the public living along the Front Range region. In addition, the types of recreation participated in, sources of information used regarding outdoor recreation opportunities, and places generally recreated in are shown.

Level of Recreational Use

A high proportion of the sample population participates in outdoor recreation (figure 1). Eighty-eight percent of those surveyed indicated that they participate in outdoor recreation on a regular basis, while only 12 percent do not participate. Only about one-quarter (24.7%) of the population are active in outdoor recreation throughout the year. Of those most active during specific seasons of the year (three-fourths of the population), 80.0 percent are active during the summer months. For each of the other portions of the year (spring, fall, and winter), about one-third of the population (36.2%, 35.1%, and 33.4% respectively) are active during each of these months. The average number of days that an individual participates in outdoor recreation each month was 5.86 days, while the average length of an outdoor recreation trip was 1.58 days.

Figure 1. Participation in outdoor recreation activities



Type of Recreational Use

Figure 2 presents the proportion of the sample population who indicated they participated in each outdoor recreation activity at least once in the past 12 months. The most popular outdoor recreation activities engaged in were auto sightseeing (68.7%), picnicking (67.9%), camping (58.5%), day hiking (52.5%), and viewing wildlife (44.2%).

Figure 3 presents the proportion of the population who typically uses each type of lodging while participating in outdoor recreation activities. It should be noted, however, that over one-third (36.5%) of the surveyed population indicated that they generally use no lodging on outdoor recreation trips since their trips tend to involve day trips only. Not represented in this figure is the type of campground facilities that are used by those persons who typically camp when participating in outdoor recreation. Of those who indicated they typically stay in a campground (44.8% of the total population), 64.4 percent use a tent as shelter, while 28.8 percent indicated that they generally camp using a recreation vehicle.

Figure 4 indicates that the most frequently used source of information regarding places to engage in outdoor recreation were friends and relatives (95.3%), a common result in past research. On the other hand, less than one-half of the respondents indicated using a public agency office for their information.

Survey respondents were shown a map of Colorado, broken into six zones. Respondents were asked which zones they had visited for the purpose of outdoor recreation in the past 12 months and how many times they had visited. Figure 5 provides a map of Colorado showing the six zones and the proportion of respondents who had recreated at least once in that zone during the past 12 months. It should be noted that the surveyed population was drawn from those persons who live along the Northern Front Range between Fort Collins and Denver (primarily zones 1 and 3).

Figure 2. Activities participated in during the last 12 months

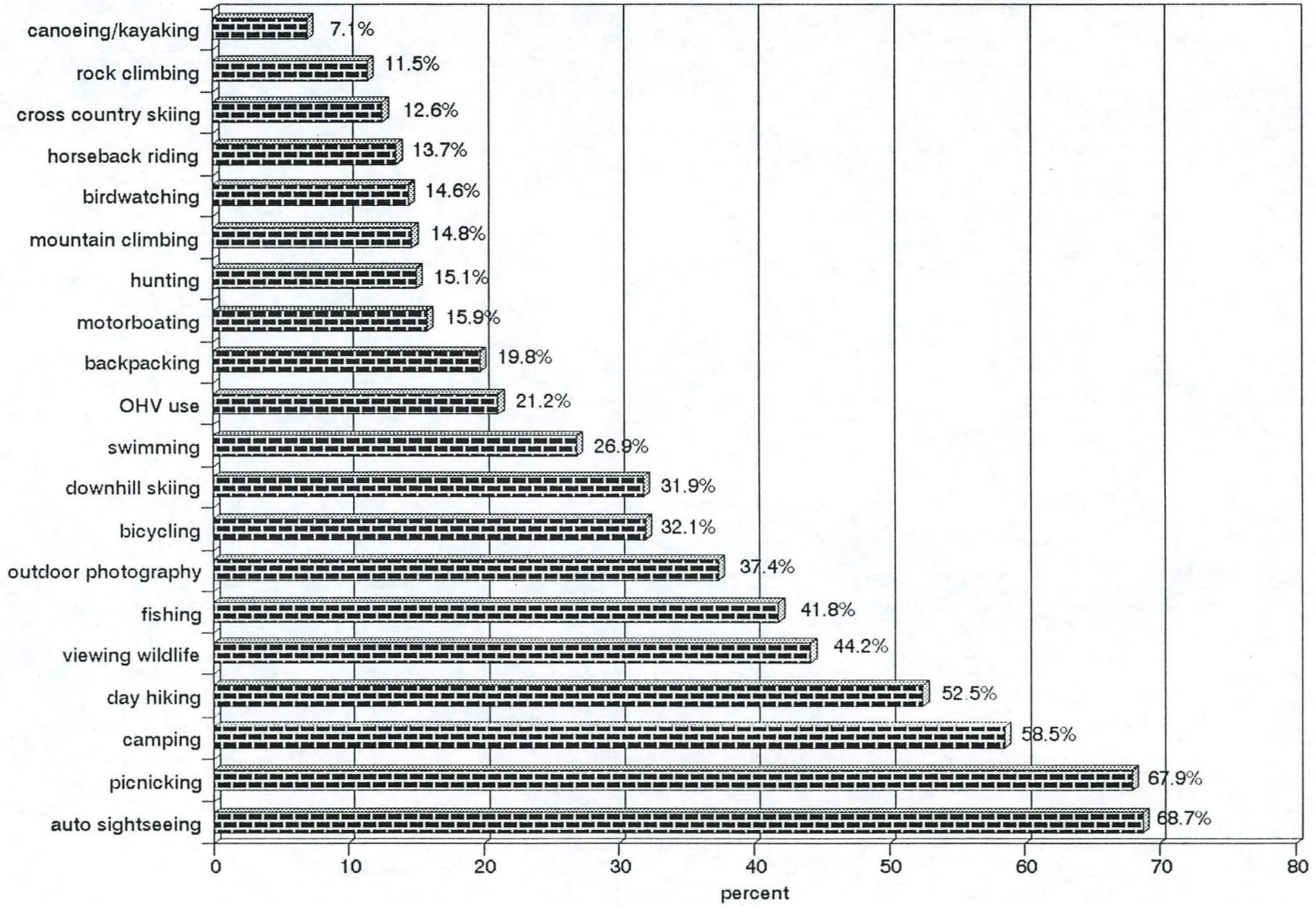


Figure 3. Lodging generally used on an outdoor recreation trip

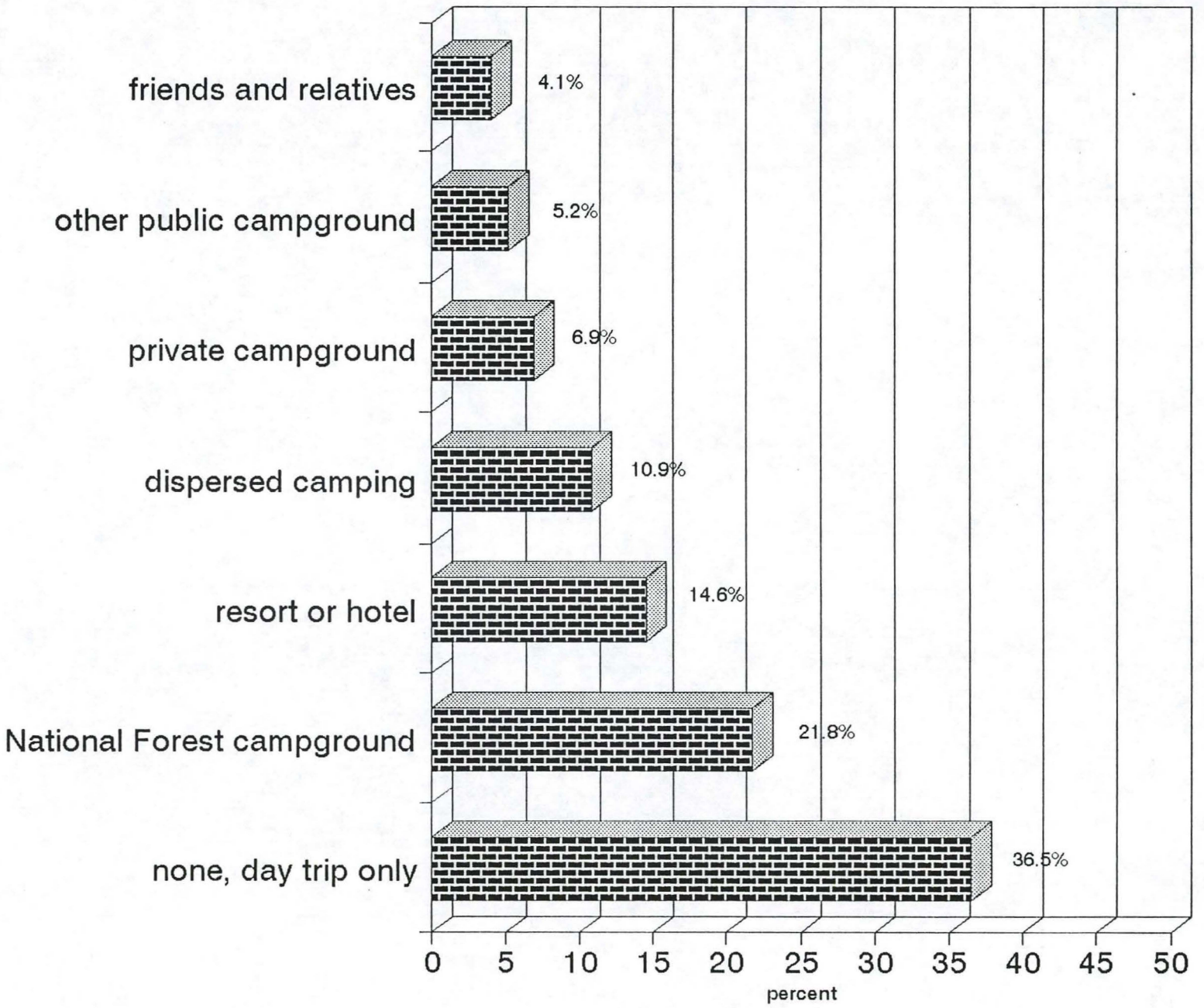


Figure 4. Proportion of respondents who indicated "occassional" or "frequent" use of each source of information

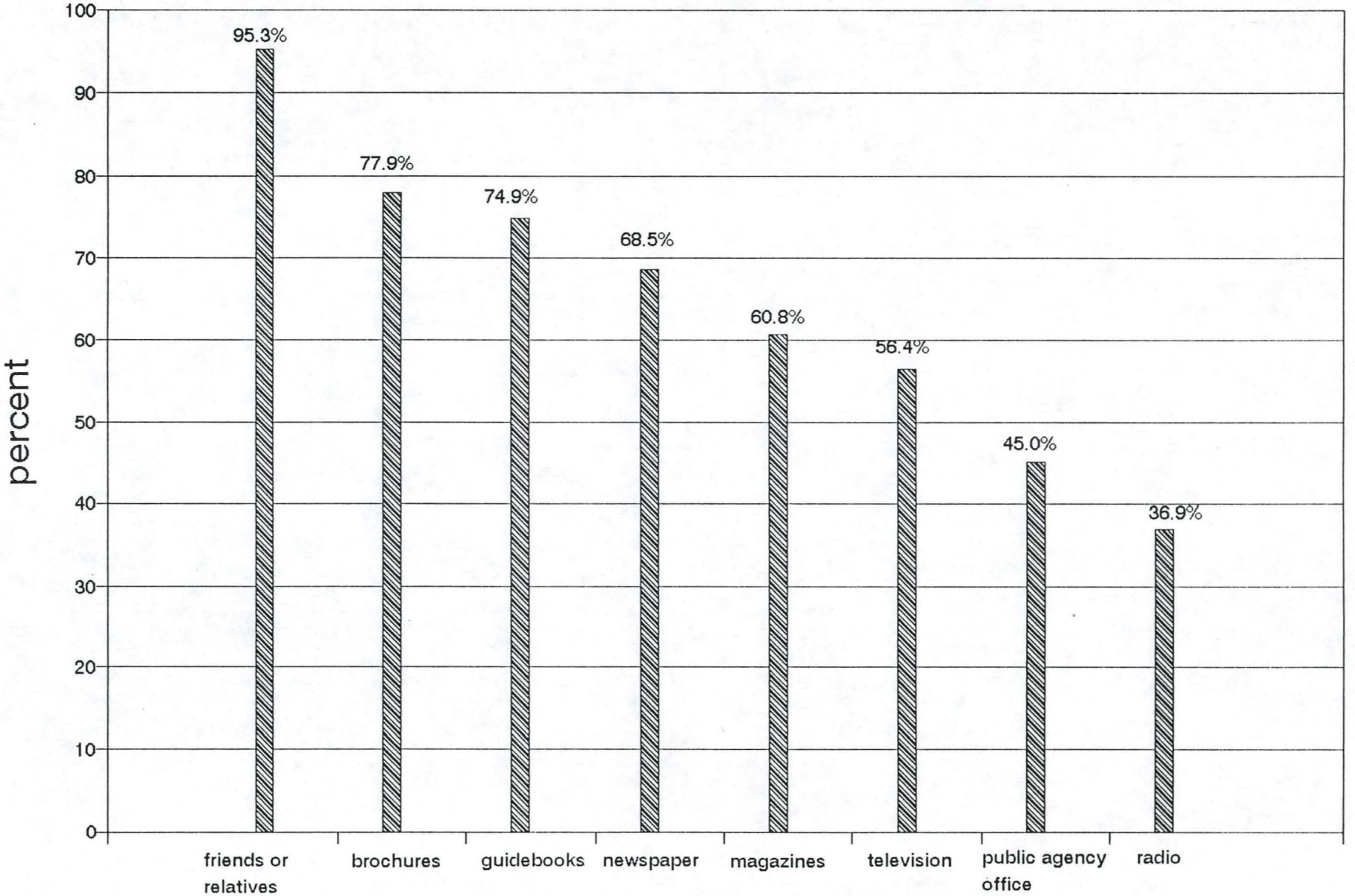
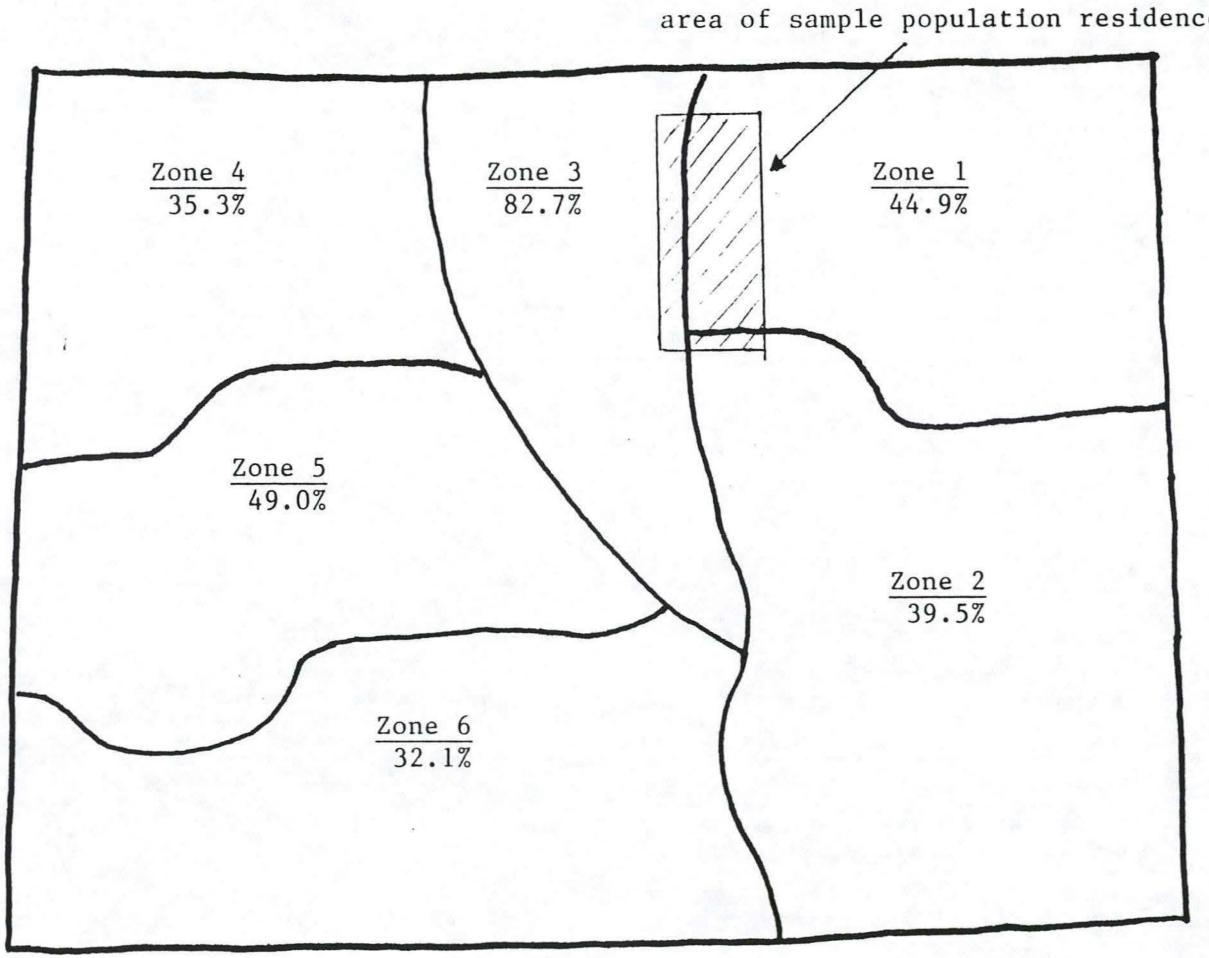


Figure 5. Proportion of respondents who have recreated in each zone in Colorado during the past 12 months



Preferences For and Availability Of Outdoor Recreation Facilities

This section describes the desirability and availability of 18 recreation facilities. Subjects were asked: "Based on the outdoor recreation activities you prefer to do on public forest lands, please rate the desirability and availability of the following recreation facilities."

Table 1 presents the proportion of the total sample population who found each facility desirable, undesirable, or neither, and the mean availability. Nearly all of the facilities were desired by at least one-half of the survey respondents. Only hot shower facilities (39.6% of the respondents desired this facility) and group shelters (30.6% desired this facility) were desired by less than 50 percent of the respondents. Several facilities were desired by over three-fourths of the survey respondents. These included nearby streams and lakes (94.5%), clear directional signs to recreation areas (87.7%), maps and guidebooks for the recreation area (87.3%), garbage cans and dumpsters (85.8%), scenic overlooks (82.0%), and well-maintained trails (78.4%).

Table 1. Proportion of respondents who found each facility desirable, undesirable, or neither and the mean availability of each facility as perceived by respondents.

Facility	Preferences			Mean Availability[1]
	undesirable	desirable	neither	
1. Undeveloped campsites	30.3	51.5	18.3	3.1
2. Developed campgrounds	19.9	65.1	15.0	3.8
3. Metal fire rings or charcoal grills	13.6	68.7	17.7	3.4
4. Picnic tables for each campsite	12.3	70.8	16.9	3.8
5. Water pumps for drinking and cooking	9.7	72.9	17.4	3.1
6. Hot shower facilities	24.3	39.6	36.1	2.0
7. Outhouse style toilet facilities	23.4	60.2	16.4	3.6
8. Flush toilet facilities	21.5	52.2	26.3	2.5
9. Garbage cans/dumpsters	7.0	85.8	7.2	3.8
10. Group shelters and facilities	25.6	30.6	43.8	2.4
11. Well maintained trails	7.0	78.4	14.6	3.6
12. Scenic overlook	3.8	82.0	14.2	4.1
13. Nearby streams and lakes	1.5	94.5	4.0	4.1
14. Barrier-free access for disabled visitors in the recreation area	3.9	61.7	34.4	2.3
15. Clear directional signs to recreation areas	4.3	87.7	8.0	3.8
16. Footbridges for crossing streams	11.3	67.7	21.0	2.8
17. Maps/guidebooks for recreation area	2.7	87.3	10.0	3.8
18. Educational signs and exhibits along trails	13.6	62.8	23.6	2.9

[1] The mean availability was measured on a scale of 1 through 6, with 1 = don't know, 2 = not at all available, 3 = somewhat available, 4 = moderately available, 5 = very available, and 6 = extremely available.

Desirability and Availability of Facilities by "Facility Dependent Group"

To more specifically examine the desirability and availability of the recreation facilities, cluster analysis identified three distinct groups of persons based on the desirability of the facilities. These groups were identified as (a) a high facility dependent group (40.6% of the sample population), (b) a moderate facility dependent group (44.6% of the sample population), and (c) a low facility dependent group (14.8% of the sample population). Table 2 shows those facilities that were desired by at least 50 percent of each group separately. Only group shelters and facilities were not desired by at least 50 percent of any group. On the other hand, garbage cans and dumpsters, well-maintained trails, scenic overlooks, nearby streams and lakes, barrier-free access for persons with disabilities, clear directional signs, and maps and guidebooks were desired by at least 50 percent of every group.

Table 2. Facilities desired by more than 50 percent of each facility dependent group.

Facility	Group: High facility dependent	Group: Moderate facility dependent	Group: Low facility dependent
1. Undeveloped campsites	*	64.1	76.1
2. Developed campgrounds	87.6	62.0	*
3. Metal fire rings or charcoal grills	90.7	61.3	*
4. Picnic tables for each campsite	97.7	59.2	*
5. Water pumps for drinking and cooking	94.6	64.1	*
6. Hot shower facilities	62.0	*	*
7. Outhouse style toilet facilities	55.0	78.2	*
8. Flush toilet facilities	82.9	*	*
9. Garbage cans/dumpsters	97.7	85.2	53.2
10. Group shelters and facilities	*	*	*
11. Well maintained trails	85.2	76.8	61.7
12. Scenic overlook	82.9	78.0	76.6
13. Nearby streams and lakes	97.7	95.1	82.6
14. Barrier-free access for disabled visitors in the recreation area	69.3	54.3	54.3
15. Clear directional signs to recreation areas	97.7	86.6	59.6
16. Footbridges for crossing streams	84.4	58.5	*
17. Maps/guidebooks for recreation area	93.8	85.8	74.5
18. Educational signs and exhibits along trails	76.0	59.2	*

* indicates this facility was desired by less than 50% of that facility dependent group.

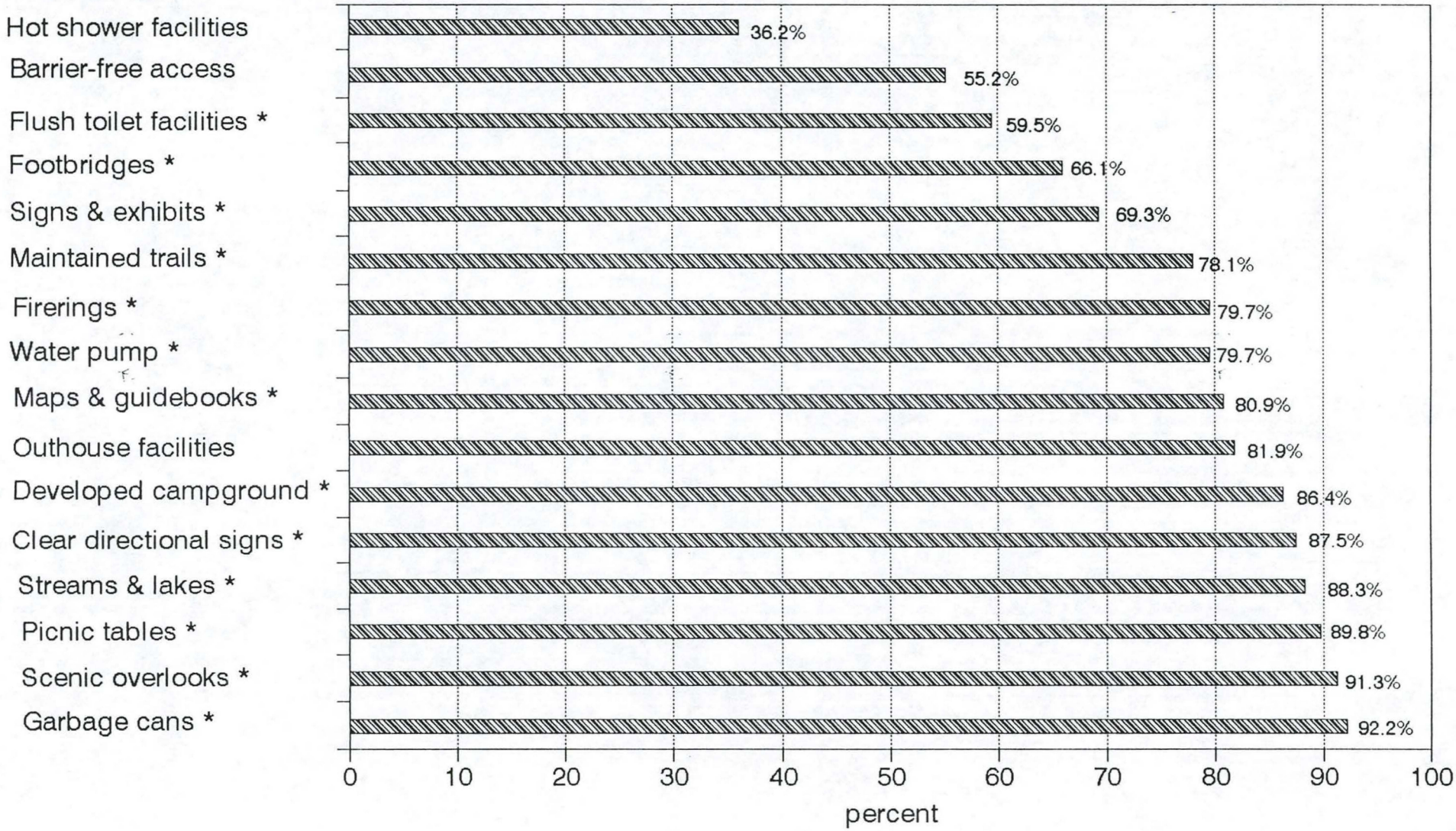
Figure 6 presents the proportion of the high facility dependent group who found each facility available while recreating in the outdoors. Facilities listed are those which over 50 percent of this group found desirable (see table 2). Facilities marked with an asterisk were desired by more than 75 percent of this group. All of the facilities shown were seen as being available by more than half of this group except hot shower facilities. Only 36.2 percent of this group felt these facilities were available.

Figure 7 presents the availability of facilities for those that were seen as desirable by more than 50 percent of the moderate facility dependent group. All the facilities were seen as available by more than 70 percent of this group except for barrier-free access for the disabled; only 50 percent found this facility to be available where they participate in outdoor recreation.

Figure 8 presents those facilities desired by more than 50 percent of the low facility dependent group and their availability. Again, the least available facility, as viewed by this group, was barrier-free access for the disabled (34.7%). All the other desired facilities were also seen as available by a large majority of persons in this group.

Figure 6. Proportion of high facility dependent group who found each facility available

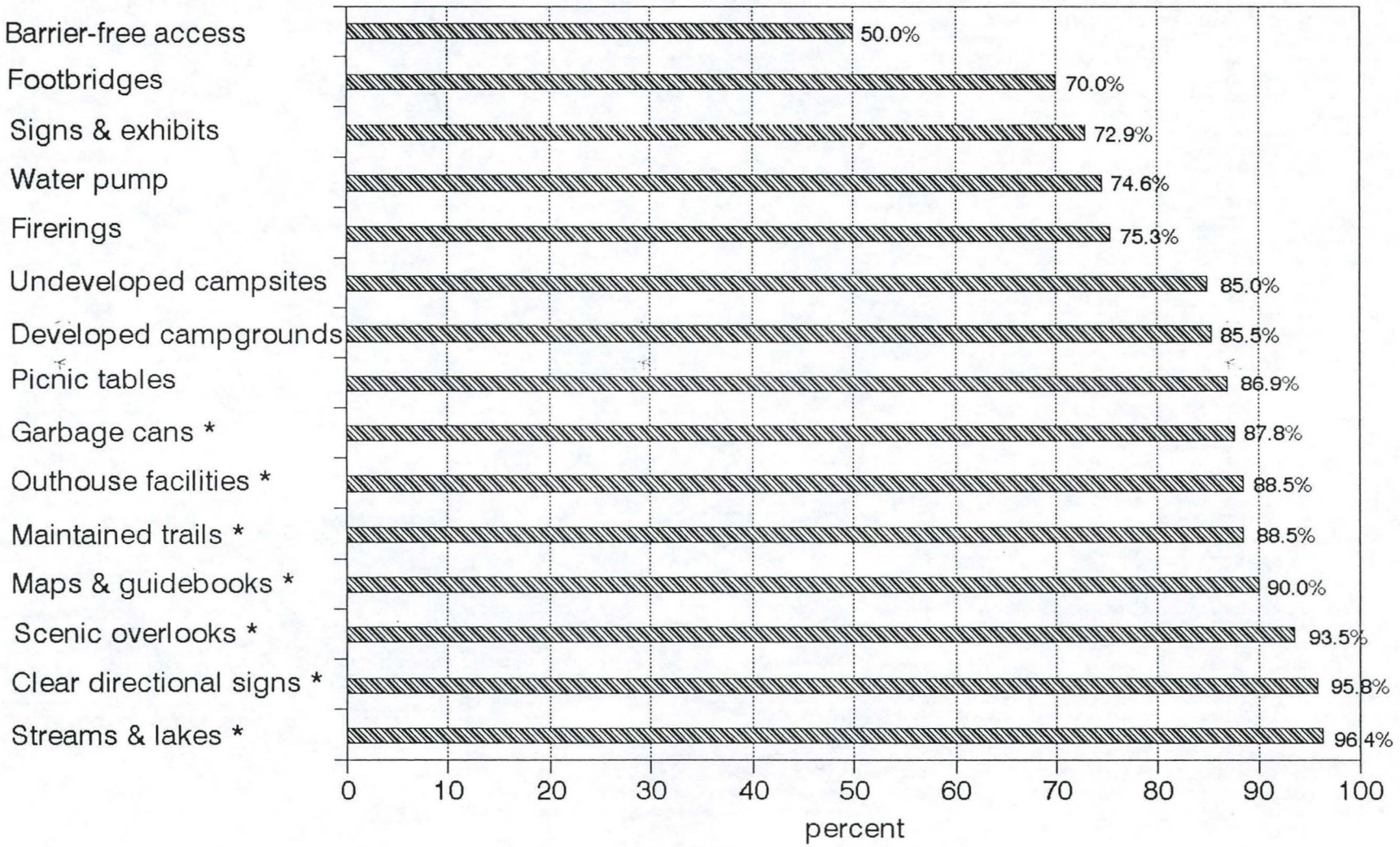
(This figure includes facilities desired by at least 50% of the high facility dependent group)



* These facilities were desired by over 75% of the high facility dependent group

Figure 7. Proportion of moderate facility dependent group who found each facility available

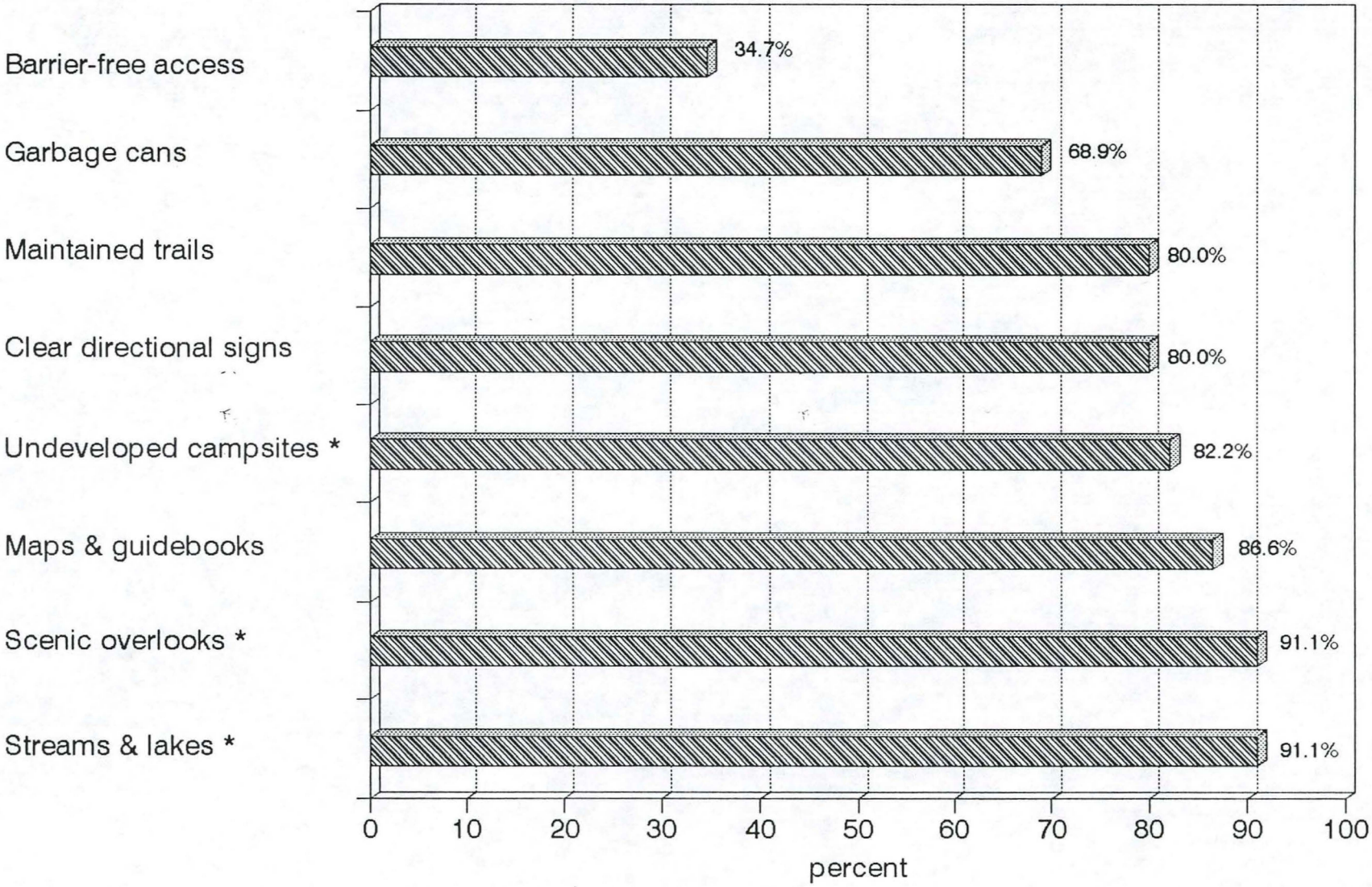
(This figure includes facilities desired by at least 50% of the moderate facility dependent group)



* These facilities were desired by over 75% of the moderated facility dependent group

Figure 8. Proportion of low facility dependent group who found each facility available

(This figure includes facilities desired by at least 50% of the low facility dependent group)



* These facilities were desired by over 75% of the low facility dependent group

Use and Preferences For Specific Recreation Settings

The first portion of this section describes the use and preferences for specific recreation settings defined based on the Recreation Opportunity Spectrum. Survey respondents were provided with a description of each recreation setting with instructions to read each description prior to answering the questions. The settings used in this study included (a) primitive, (b) semiprimitive nonmotorized, (c) semiprimitive motorized, (d) roaded natural, and (e) rural. The second portion of this section discusses attitudes toward the U.S. Forest Service.

Use and Preferences for Recreation Settings

Figure 9 presents the proportion of respondents who indicated that they recreate most often in each recreation setting, broken out by the setting most preferred. Examination of this figure brings to light general conclusions. For example, it appears that the two most developed settings, roaded natural and rural, best meet demand for recreating in them. Examination of the semiprimitive nonmotorized, semiprimitive motorized, and roaded natural settings indicates that in circumstances where the most preferred setting is not the same as the setting most recreated in, subjects are more likely to recreate in a setting allowing more development rather than settling for a less developed setting.

Primitive setting. The most preferred setting was the primitive setting, with 33.7 percent of the surveyed population indicating that they most prefer recreating in this setting. More of these respondents indicated they recreate most in this setting than in any other setting. However, this proportion made up less than one-half (35.5%) of those who most preferred a primitive setting. Nearly 40 percent of those persons who preferred a primitive setting indicated that they actually recreated most in either a semiprimitive nonmotorized setting (19.6%) or a rural setting (20.3%).

Semiprimitive nonmotorized setting. Nearly one-fifth of the surveyed population (18.1%) prefer recreating in a semiprimitive nonmotorized setting. Of these, one-third (33.3%) recreate most in that setting, while more than one-half of those preferring this setting (60.2%) actually recreate most in either the semiprimitive motorized, roaded natural, or rural settings.

Semiprimitive motorized setting. Fourteen percent of those surveyed prefer to recreate in a semiprimitive motorized setting. Of these, over 40 percent (41.3%) recreate most in this setting. Similarly, over 40 percent of those who preferred this setting indicated they recreate most in either the roaded natural or

rural settings.

Roaded natural setting. The second most preferred setting was the roaded natural setting, with 21.6 percent of those surveyed preferring this setting the most. Also, this setting appears to meet demand for its use better than the primitive, semiprimitive nonmotorized, and semiprimitive motorized settings. Well over one-half of those persons preferring this setting also indicated that they generally recreate in this setting (64.0%). Most of those not recreating primarily in this setting indicated they recreate primarily in a rural setting.

Rural setting. Although it was the setting preferred by the lowest proportion of the surveyed population (12.6%), the rural setting appears to be the most effective setting for meeting its demand. Nearly three-fourths of those persons who preferred this setting also recreate most in this setting (73.2%).

Attitude Toward the U.S. Forest Service

Figure 10 presents the proportion of the population who "moderately" or "strongly" agreed with specific statements about the Forest Service. In general, there was a positive attitude toward encountering Forest Service employees while recreating in the outdoors. For example, over 70 percent of those surveyed indicated that they enjoyed seeing Forest Service employees.

Figure 9. Proportion of respondents who recreate most in each setting by most preferred setting

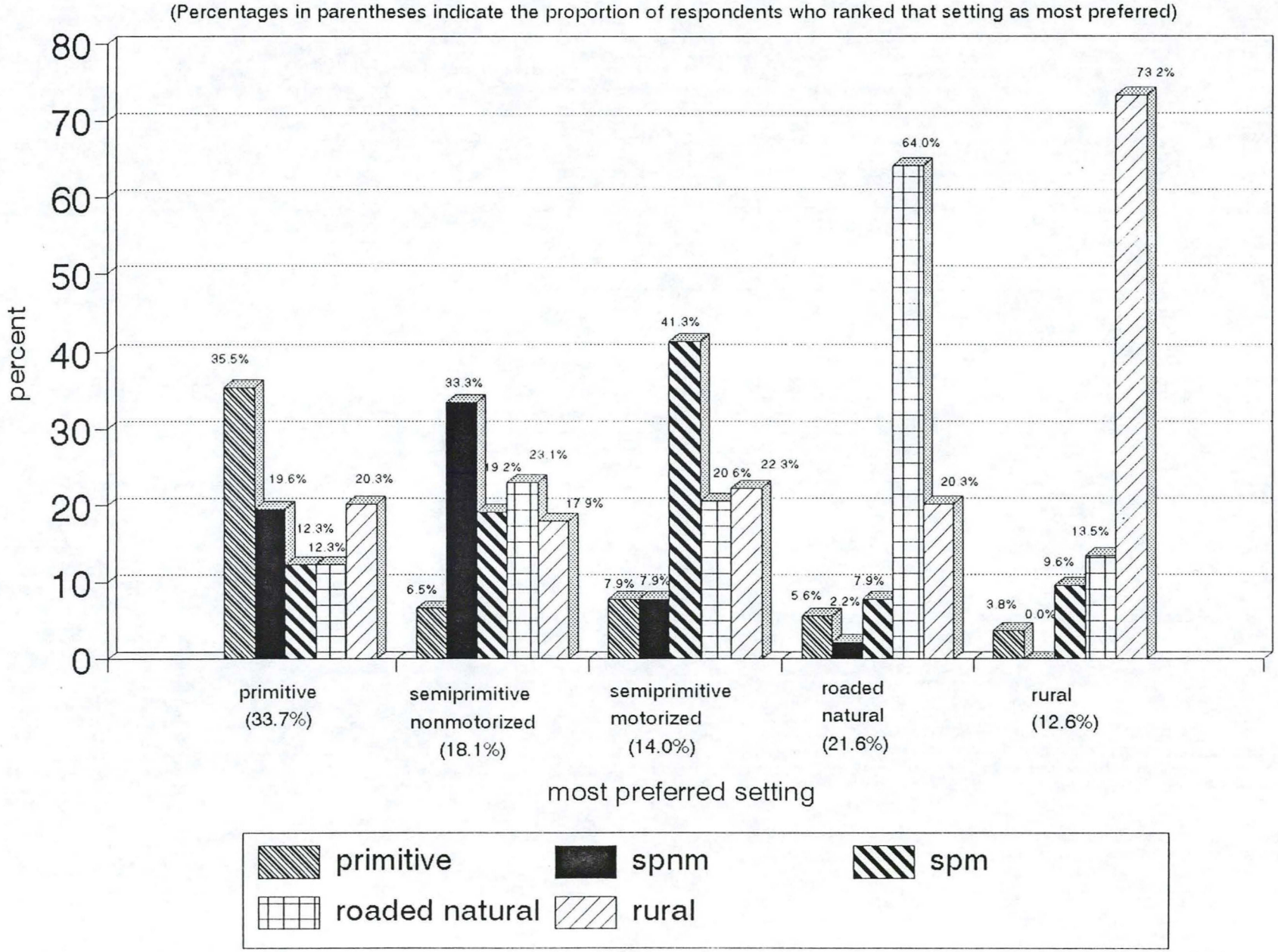
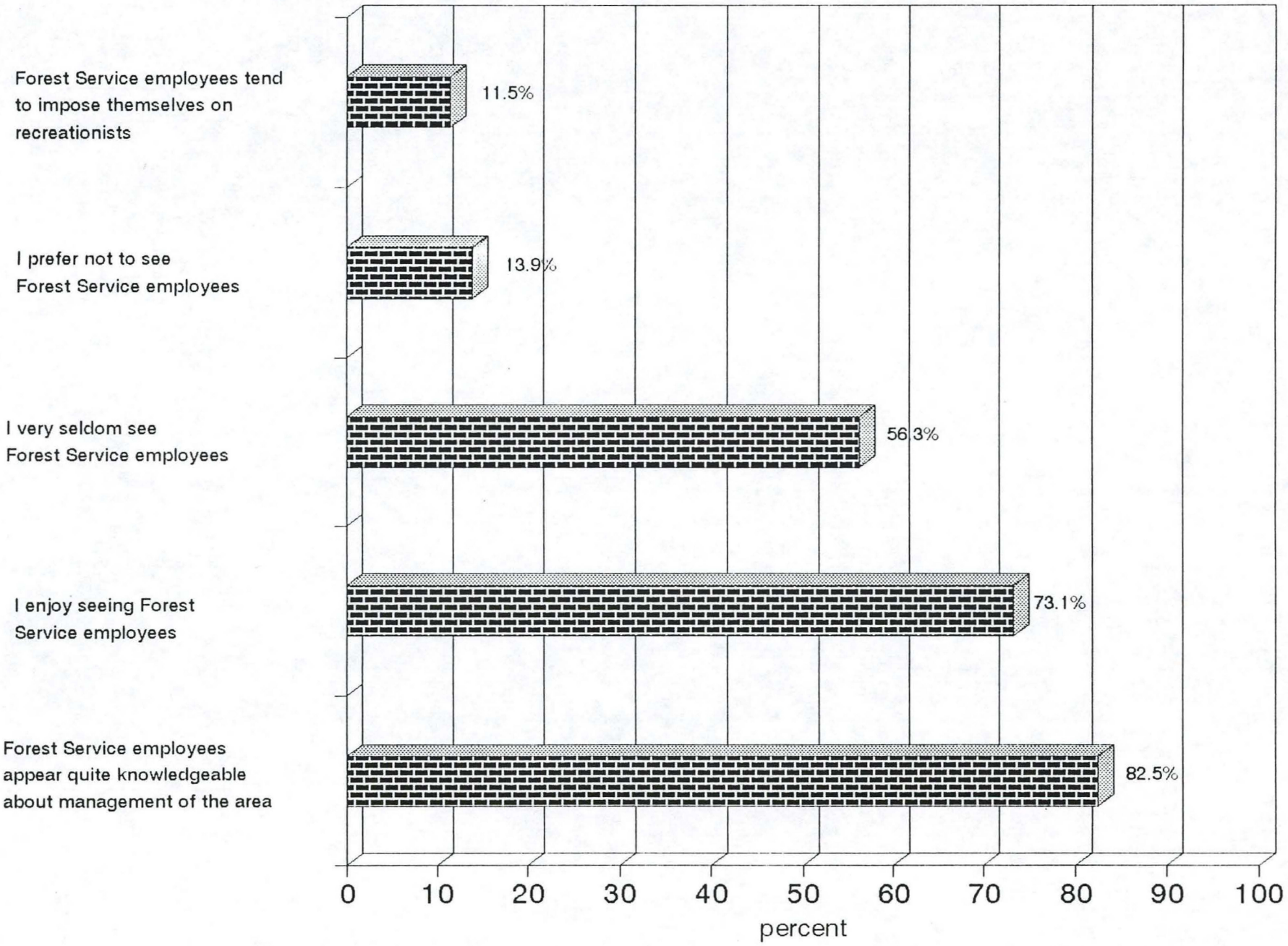


Figure 10. Proportion of respondents who "strongly" or "moderately" agreed with each statement about the U.S. Forest Service

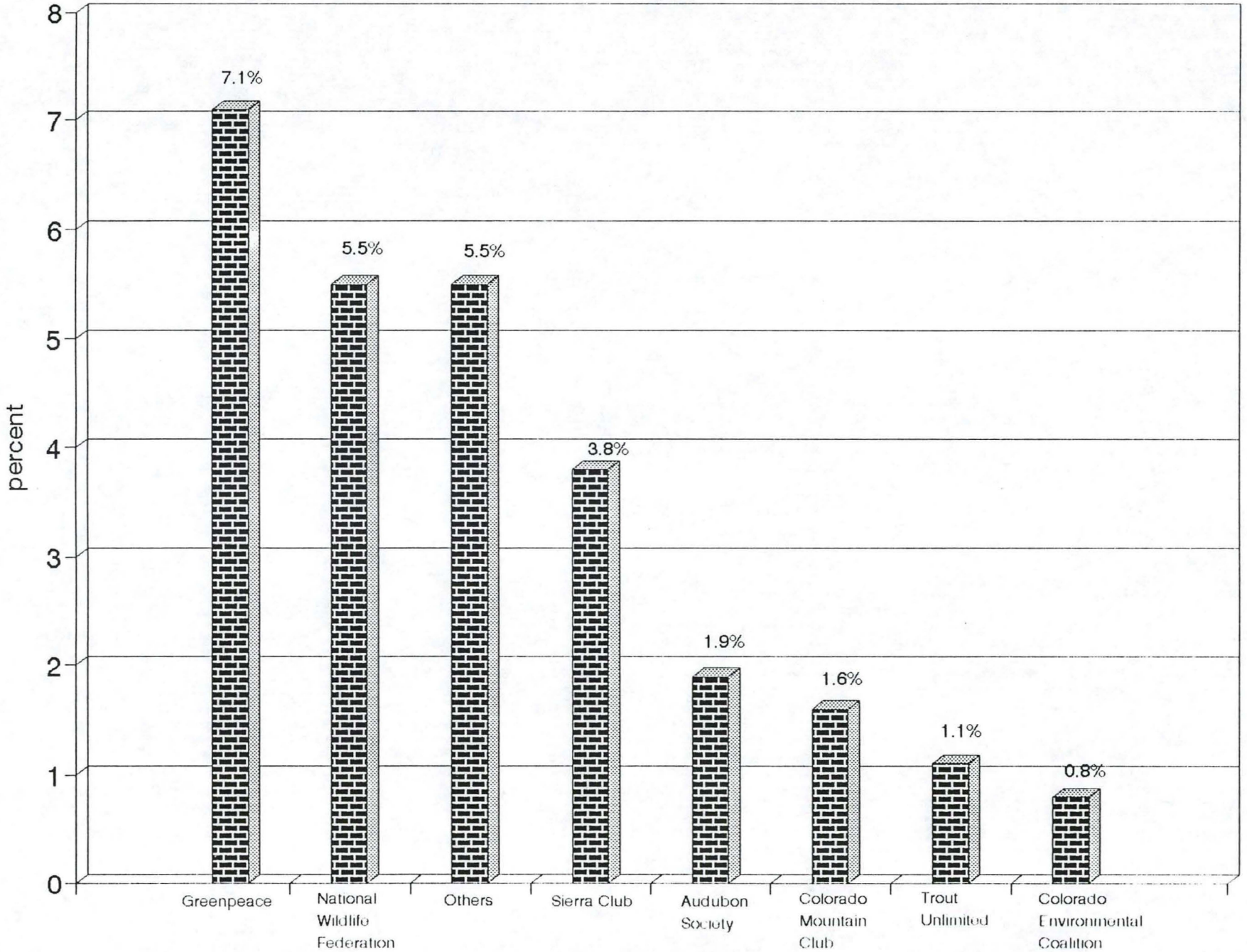


Affiliation and Involvement in Environmental and Recreation Organizations

This section examines the affiliation and involvement of the public in environmental and recreation organizations. Nearly 83 percent of the population indicated that they do not belong to any environmental or recreation groups. Figure 11 presents the proportion of the total population who are members of specific organizations. It appears that the most popular organization for the subject population is Greenpeace (7.1% of the total population), the National Wildlife Federation (5.5%), and the Sierra Club (3.8%).

The organizations that members indicated they were most active in were those that may be considered regional. For example, on a scale of 1 (not at all active) through 5 (extremely active), members of the Colorado Environmental Coalition said, on average, that they were very active in this organization ($\underline{m}$ = 4.00). Similarly, members of the Colorado Mountain Club indicated they were moderately active ($\underline{m}$ = 3.00). For one national organization, Trout Unlimited, members indicated they were moderate to very active ($\underline{m}$ = 3.60). It is important to note that the organizations for which people said they were most active are also the organizations for which there was the least membership. The national organizations, while showing greater membership, also showed a lower level of activism by members in the population, ranging from slightly active (National Wildlife Federation $\underline{m}$ = 1.95) to slightly to moderately active (Sierra Club $\underline{m}$ = 2.20).

Figure 11. Proportion of respondents who belong to various environmental/recreation groups



Public Attitudes Toward Natural Resource Management Issues on the ARNF and PNG

This section presents (a) the importance of specific issues, (b) attitudes toward management strategies, (c) support of specific management strategies, and (d) the importance of reasons for following specific management strategies for each natural resource management issue as it relates to the Arapaho and Roosevelt National Forests and Pawnee National Grasslands. The specific issues addressed are motorized versus nonmotorized recreation, timber harvest levels, livestock grazing on public lands, management of unroaded areas, and management of old-growth forests.

Importance of Issues

All of the issues were ranked by respondents as being relatively important. The importance of the issues were ranked on a scale of 1 (not important) through 5 (very important). The mean importance for each issue was; unroaded areas, $\underline{m} = 3.99$; motorized versus nonmotorized recreation, $\underline{m}$ 3.97; timber harvest, $\underline{m} = 3.96$; old-growth forests, $\underline{m} = 3.88$; and livestock grazing, $\underline{m} = 3.61$. None of the differences between means across management issue were found to be statistically significant.

Attitudes and Support of Management Strategies

Following are the results of obtaining measurements of attitudes toward and support of natural resource management strategies for each of the five natural resource management issues. In addition, for each strategy, chi-square analysis was used to determine if there were significant relationships between what management strategy is supported and (a) socio-demographic characteristics and (b) environmental/recreation organization membership of the sample population. For those characteristics that a significant relationship was found at $\underline{p} \leq .05$, Cramer's V (V_c) or Phi is presented, giving an indication of the strength of that relationship on a scale of .00 to 1.00. Finally, the importance of several statements about each issue were measured and compared across groups supporting different management strategies. The method proposed by Leuschner, et al. (1988) was used to obtain weights for each statement. Since these weights provide a relative ranking of statements, statements whose weights are close together are similar in importance while those with very different weights are assumed to be quite different in importance. Analysis of variance examined the difference in weights across groups supporting specific strategies.

Motorized versus nonmotorized recreation. The description of the motorized versus nonmotorized issue presented to respondents read as follows:

> There is considerable controversy regarding the merits of motorized (automobiles, off-highway vehicles) and nonmotorized (hiking, mountain biking, horseback riding) uses of the Arapaho & Roosevelt National Forests (**ARNF**) and Pawnee National Grassland (**PNG**). At one end of the spectrum are those persons who demand primitive recreation opportunities in wilderness or unroaded areas with no contact with motorized uses. On the other hand there are persons who desire backcountry recreation while still able to travel by automobile or other motorized vehicles.
>
> Some people believe we should emphasize motorized recreation opportunities because:
> a. Driving for pleasure is the most frequent recreation on the Forests and Grasslands.
> b. It will provide for recreation involving four-wheel drive and off-highway vehicles, such as ATVs and motorcycles.
> c. It allows persons with disabilities and older persons an opportunity to enjoy the wilderness.
>
> Some people believe we should emphasize nonmotorized recreation opportunities because:
> d. It will reduce the need for more roads to be developed.
> e. It will reduce the impact of recreation on wildlife, soils and vegetation.
> f. It will enhance the recreation experience of those who prefer nonmotorized recreation.

Figure 12 presents the proportion of persons who felt each strategy regarding this issue was either good or bad. Less than one-fourth (22.2%) of the population believed that managing the Arapaho and Roosevelt National Forests and Pawnee National Grasslands emphasizing motorized recreation would be a good strategy. Over two-thirds of the population believed that managing the area emphasizing nonmotorized recreation would be good. Figure 13 presents the choices made between the two strategies. Over 70 percent of the population indicated they support managing the ARNF & PNG emphasizing nonmotorized recreation.

Figure 12. Proportion of respondents who felt each strategy was good/bad
--motorized versus nonmotorized recreation--

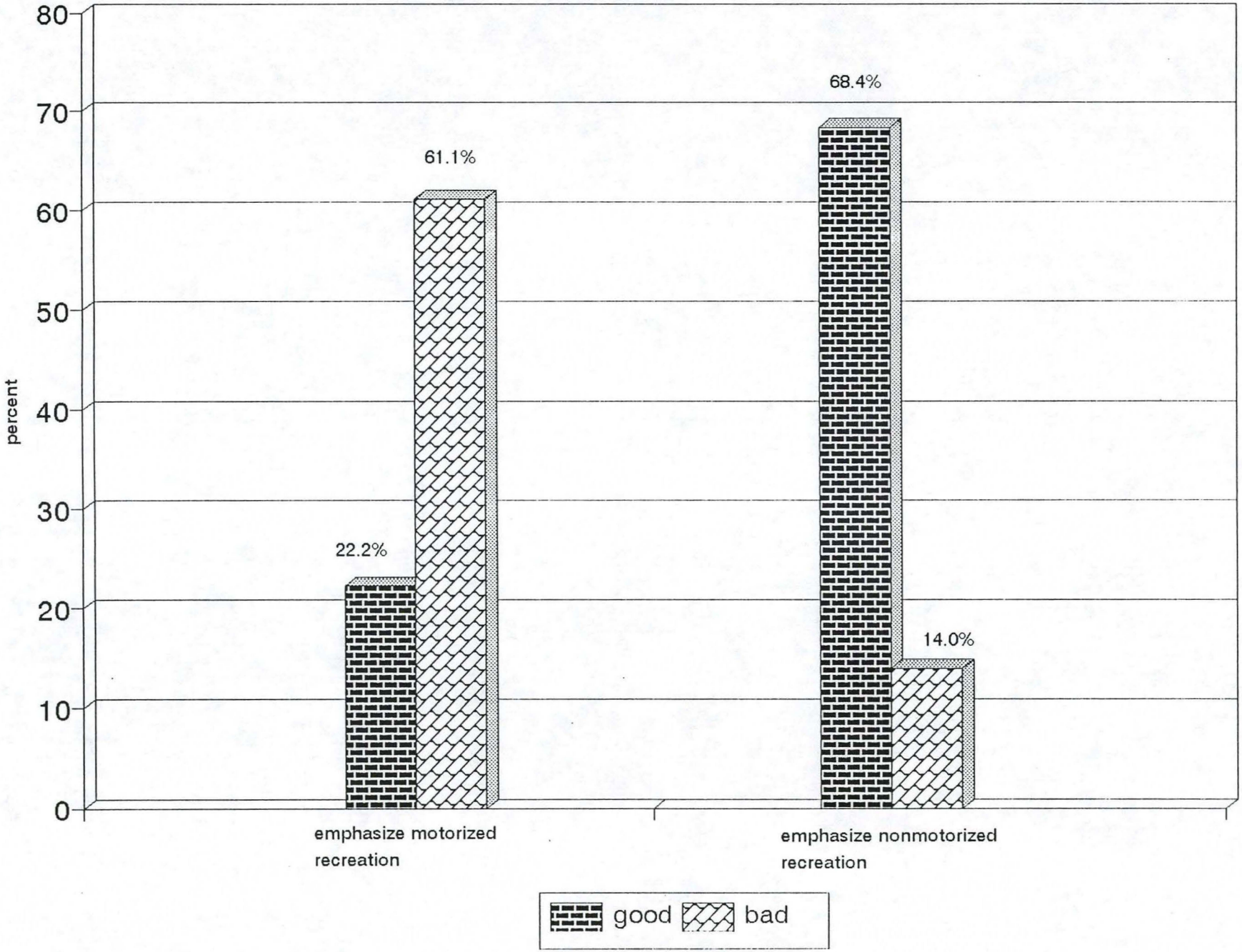


Figure 13. Proportion of respondents supporting each strategy
--motorized versus nonmotorized recreation--

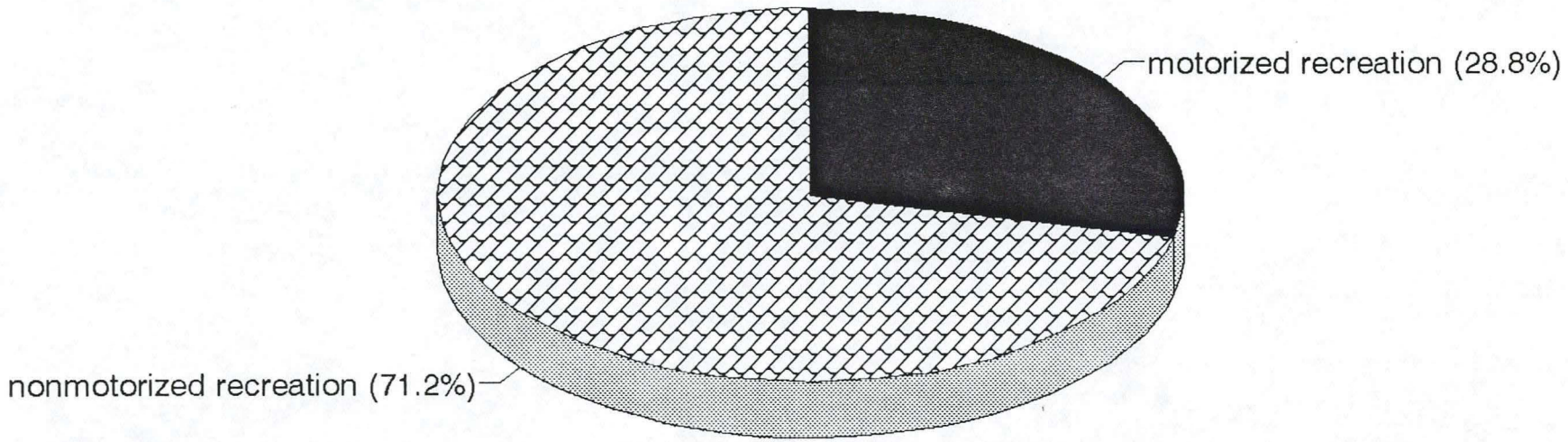


Table 3 presents a breakdown of the proportion of the population who supported a motorized versus nonmotorized emphasis by socio-demographic variable using chi-square analysis. For most of the socio-demographic variables, there was no significant relationship between socio-demographic characteristic and the specific strategy that was supported using a significance level of $p \leq .05$. There were, however, two exceptions. Self-employed people appeared more likely to support a nonmotorized strategy than non self-employed people ($X^2 = 7.8$). However, the Phi statistic (Phi = .16) indicates this relationship is weak. Similarly, there appears to be a significant but relatively weak relationship between level of education and strategy supported ($X^2 = 22.8$; Phi = .19). As education increases, the likelihood that one would support a nonmotorized strategy appears to increase.

There was also a significant relationship between organization membership and strategy support (table 3). Although both members and nonmembers of environmental and recreation organizations tended to support emphasizing nonmotorized recreation, those persons who were members of an organization were more likely to support an emphasis on nonmotorized recreation than those persons who did not belong to an environmental or recreation organization.

Table 3. Choice of natural resource management strategies regarding motorized versus nonmotorized emphasis broken down by socio-demographic variable and organization membership.

Socio-demographic Variable	N	Choice		X^2	Phi
		Motorized	Nonmotorized		
Gender:					
Male	197	25.1	74.9		
Female	165	32.1	67.9	5.1	
Race:					
White	338	28.2	71.8		
Black	2	100.0	00.0		
Indian	4	25.0	75.0		
Asian	2	00.0	100.0		
Mexican	7	57.0	43.0		
Euro-hispanic	4	50.0	50.0	5.2	
Employment:					
Self-employed	58	18.9	81.1		
Non self-employed	305	30.5	69.5	7.8*	.16
Full-time	191	25.3	74.7		
Non full-time	172	32.3	67.7	5.6	
Part-time	52	32.6	67.4		
Non part-time	311	28.0	72.0	.6	
Student	28	23.1	76.9		
Non student	335	29.1	70.9	.5	
Homemaker	35	36.7	63.3		
Non homemaker	328	27.8	72.2	1.1	
Unemployed	14	27.3	72.7		
Non unemployed	349	28.7	71.3	.1	
Retired	41	42.1	57.9		
Non retired	322	26.9	73.2	6.6	

Table 3 continued

Income:					
<15,000	41	21.1	78.9		
15,000 - 29,999	76	30.4	69.6		
30,000 - 44,999	89	29.3	69.5		
45,000 - 59,999	66	36.2	63.8		
60,000 - 74,999	26	25.0	75.0		
75,000 - 89,999	18	12.5	87.5		
90,000 - 104,999	8	25.0	75.0		
105,000 - 119,999	5	20.0	80.0		
>120,000	13	16.7	83.3	12.8	
Community size:					
rural	33	20.7	79.3		
city; > 300,000	56	28.8	71.2		
suburb of large city	123	32.4	67.6		
100,000 - 300,000	25	36.4	63.6		
50,000 - 100,000	68	16.7	83.3		
10,000 - 50,000	36	37.1	62.9		
< 10,000	19	35.3	64.7	18.0	
Education:					
Elementary	3	00.0	100.0		
High School	92	44.0	56.0		
College or Vocational	193	23.8	76.2		
Graduate School	73	20.0	80.0	22.8**	.19
Age:					
18 - 25	35	21.4	78.6		
26 - 40	147	25.4	74.6		
41 - 55	99	26.1	73.9		
56 - 65	31	35.7	64.3		
> 65	24	50.0	50.0	9.1	
Organization Membership:					
Yes	60	15.0	85.0		
No	260	31.9	68.1	6.0*	.15

* indicates X^2 is significant at $p \leq .05$
** indicates X^2 is significant at $p \leq .01$

Table 4 presents the order of importance of several statements regarding the pros and cons to emphasizing either motorized or nonmotorized recreation on the ARNF & PNG, broken out by groups of persons who indicated support for each natural resource management strategy. The most important statements for those persons who support emphasizing motorized recreation addressed (a) driving for pleasure (weight = 26.05), (b) consideration for persons with disabilities (weight = 25.26), and (c) providing opportunities for motorized recreation (weight = 15.30). All of these statements showed statistically greater importance for the group supporting an emphasis on motorized recreation than for the group supporting an emphasis on nonmotorized recreation.

The most important statements for those persons supporting a nonmotorized recreation emphasis addressed (a) reducing the impact of recreation (weight = 27.80), (b) reducing the need for more roads (weight = 20.49), and (c) enhancing the recreation experience (weight = 17.14). The importance of these statements to those persons supporting an emphasis of nonmotorized recreation was significantly greater than for those persons supporting an motorized recreation emphasis.

Table 4. Rank order of the importance of statements regarding emphasizing motorized versus nonmotorized recreation on the ARNF & PNG.

	Weights (rank)	
	Emphasize motorized recreation	Emphasize nonmotorized recreation
Some people believe we should emphasize motorized recreation opportunities because:		
a. Driving for pleasure is the most frequent recreation on the Forests and Grasslands.	26.05[a] (1)	11.96[b] (5)
b. It will provide for recreation involving four-wheel drive and off-highway vehicles, such as ATVs and motorcycles.	15.29[a] (3)	5.90[b] (6)
c. It allows persons with disabilities and older persons an opportunity to enjoy the wilderness.	25.26[a] (2)	16.71[b] (4)
Some people believe we should emphasize nonmotorized recreation opportunities because:		
d. It will reduce the need for more roads to be developed.	11.69[a] (5)	20.49[b] (2)
e. It will reduce the impact of recreation on wildlife, soils and vegetation.	14.96[a] (4)	27.80[b] (1)
f. It will enhance the recreation experience of those who prefer nonmotorized recreation	6.75[a] (6)	17.14[b] (3)

Different superscripts for each statement indicate statistically significant differences in importance weights for that statement between groups supporting each strategy at a significance level of $p \leq .05$.

Timber harvest. The description of the timber harvest issue presented to respondents read as follows:

> By federal law and mandate, National Forests are managed for many different types of uses. One of these uses is timber harvest to help meet society's need for building supplies and paper products. About one-third of the Arapaho & Roosevelt National Forests (**ARNF**) or 350,000 acres were considered available for timber harvest under the 1984 Forest Plan. During the last three years, the ARNF has harvested 1,500 acres of trees each year, but the plan allows for harvest of 4,500 acres each year.
>
> Some people believe we should maintain current timber harvest levels (1,500 acres per year) because:
>
> a. It will allow the Forest Service to set aside more old-growth trees.
> b. Wildlife species dependent on older trees, such as the pinemarten and flammulated owl, would benefit from lower harvest levels.
> c. The natural beauty of the forest would receive greater management emphasis.
> d. Recreationists on the forest would find a more natural setting.
>
> Some people believe we should allow harvest of higher levels of timber (4,500 acres per year) because:
>
> e. It will create jobs for rural communities.
> f. It will decrease some of the risks associated with wildfire and insect/disease infestations.
> g. Wildlife species dependent on younger forests would benefit from higher harvest levels.
> h. Roads associated with timber harvest could improve and/or increase motorized recreation opportunities.
> i. It more adequately meets the processing capacity of the local mills.

Figure 14 presents the proportion of the population who believed each strategy related to the levels of timber harvest in the ARNF was either good or bad. Most of those surveyed felt that increasing timber harvest levels to 4,500 acres per year was a bad strategy (76.1%). On the other hand, two-thirds of those surveyed (67.6%) felt that keeping timber harvest at current levels was a good strategy. Finally, the population was split fairly even regarding how they felt about decreasing harvest to below current levels. About one-third believed that was a good strategy (33.8%) while another third believed this was a bad strategy (33.1%). This strategy is also characterized by a large proportion of the population who held neutral attitudes (33.1%). Figure 15 presents the choice made between the three strategies. Most of those surveyed supported maintaining current levels of timber harvest (68.2%).

Figure 14. Proportion of respondents who felt each strategy was good/bad
--timber harvest--

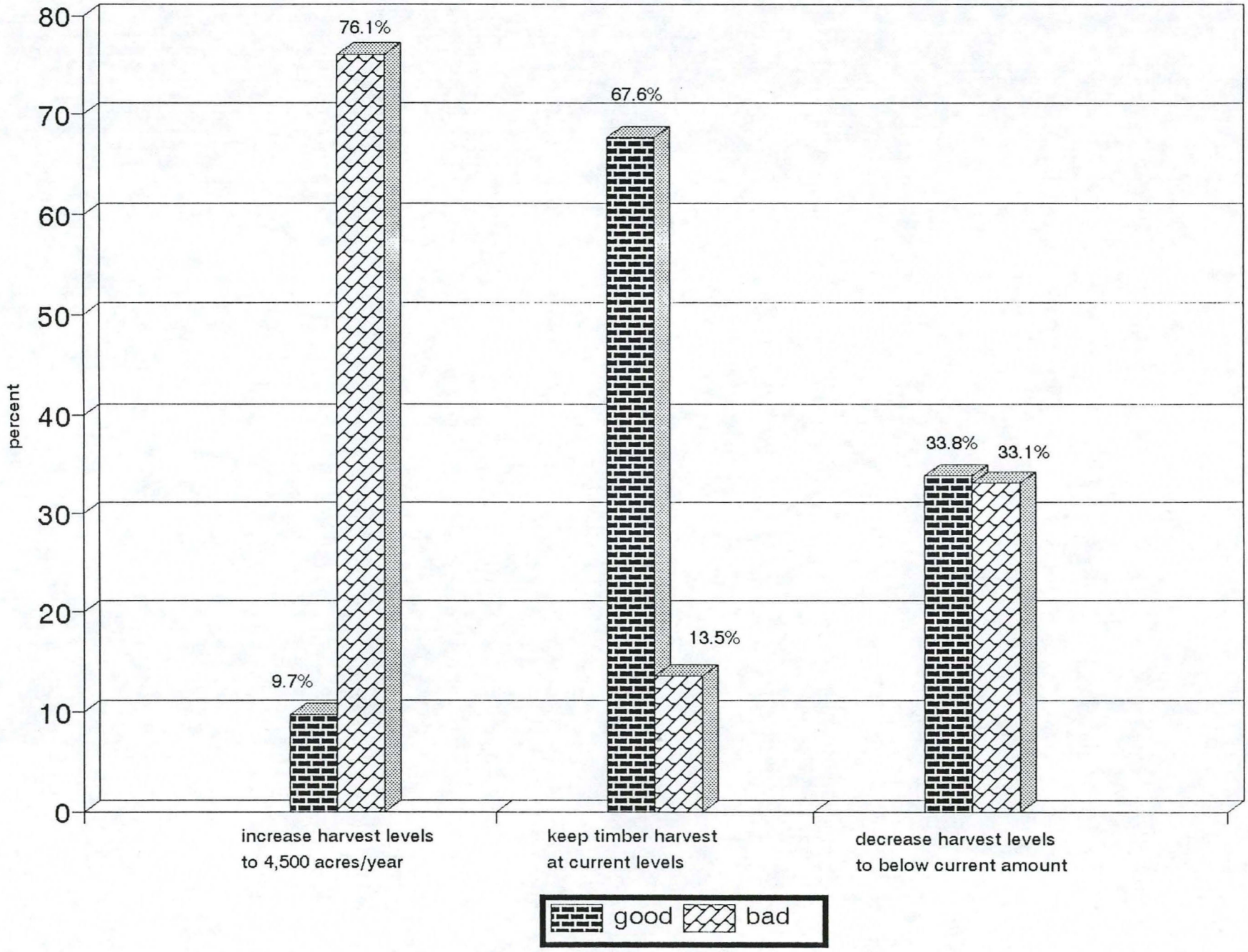


Figure 15. Proportion of respondents supporting each strategy
--timber harvest--

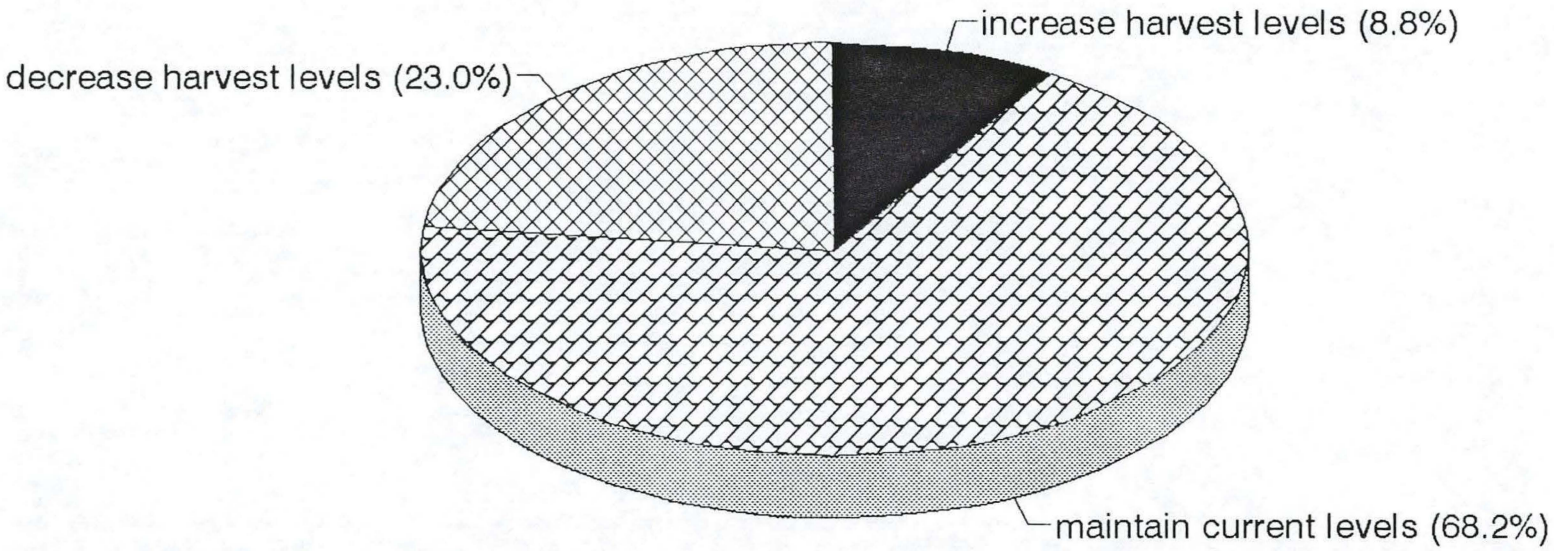


Table 5 presents the proportion of persons who supported one of the three timber harvest strategies, broken down by socio-demographic variable. The only significant relationship between choice and socio-demographic variable was age ($X^2 = 18.7$). All of the age groups primarily supported maintaining current harvest levels, however, they differed on the extent to which other strategies were supported. The oldest category, those persons over 65 years old, almost exclusively supported maintaining current harvest levels. Over one-fourth of the second highest age group, 56 - 65 years old, supported increasing timber harvest levels. Persons who supported decreasing timber harvest levels were most likely to be in the lowest three age categories. Cramer's V ($V_c = .18$) indicates that this relationship, though significant, was relatively weak.

There was a significant ($X^2 = 5.9$), yet relatively weak ($V_c = .14$), relationship between membership in environmental and recreation organizations and support of management strategy. It appears that organization members were more likely to support a strategy calling for a decrease in timber harvest levels and less likely to support increasing these levels than were nonmembers.

Table 5. Choice of natural resource management strategies regarding timber harvest levels broken down by socio-demographic variable.

Socio-demographic Variable	N	Choice: Increase	Current	Decrease	X^2	V.
Gender:						
Male	197	12.3	64.2	23.5		
Female	165	4.3	73.2	22.5	7.0	
Race:						
White	338	9.4	67.1	23.5		
Black	2	00.0	100.0	00.0		
Indian	4	00.0	100.0	00.0		
Asian	2	00.0	100.0	00.0		
Mexican	7	00.0	83.3	16.7		
Euro-hispanic	4	00.0	100.0	00.0	5.7	
Employment:						
Self-employed	58	11.8	68.6	19.6		
Non self-employed	305	8.2	68.2	23.6	.9	
Full-time	191	6.0	67.3	26.8		
Non full-time	172	12.0	69.3	18.7	5.6	
Part-time	52	14.6	62.5	22.9		
Non part-time	311	7.8	69.3	23.0	2.4	
Student	28	3.8	73.1	23.1		
Non student	335	9.3	67.8	22.9	.9	
Homemaker	35	3.3	76.7	20.0		
Non homemaker	328	9.4	67.4	23.2	1.6	
Unemployed	14	9.1	45.5	45.6		
Non unemployed	349	8.8	69.1	22.1	3.4	
Retired	41	10.8	73.0	16.2		
Non retired	322	8.6	67.5	23.9	1.6	

Table 5 continued

Income:						
<15,000	41	5.7	77.1	17.2		
15,000 - 29,999	76	7.5	71.6	20.9		
30,000 - 44,999	89	3.7	68.3	28.0		
45,000 - 59,999	66	12.3	63.2	24.5		
60,000 - 74,999	26	10.5	68.4	21.1		
75,000 - 89,999	18	13.3	73.3	13.4		
90,000 - 104,999	8	37.5	50.0	12.5		
105,000 - 119,999	5	00.0	75.0	25.0		
>120,000	13	7.7	69.2	23.1	19.9	
Community size:						
rural	33	10.3	69.0	20.7		
city; > 300,000	56	12.5	64.6	22.9		
suburb of large city	123	7.5	75.5	17.0		
100,000 - 300,000	25	00.0	71.4	28.6		
50,000 - 100,000	68	11.3	64.5	24.2		
10,000 - 50,000	36	11.4	57.1	31.5		
< 10,000	19	00.0	66.7	33.3	10.4	
Education:						
Elementary	3	00.0	00.0	100.0		
High School	92	11.3	65.0	23.7		
College or Vocational	193	7.2	73.1	19.7		
Graduate School	73	10.3	61.8	27.9	22.8	
Age:						
18 - 25	35	3.6	75.0	21.4		
26 - 40	147	8.0	69.6	22.4		
41 - 55	99	7.5	64.5	28.0		
56 - 65	31	25.9	59.3	14.8		
> 65	24	9.5	90.5	00.0	18.7*	.18
Organization Membership:						
Yes	60	1.8	68.4	29.8		
No	260	10.6	69.0	20.4	5.9*	.14

* indicates X^2 is significant at $p \leq .05$
** indicates X^2 is significant at $p \leq .01$

Table 6 presents the order of importance of several statements regarding the pros and cons to maintaining current levels of timber harvest or increase such levels in the ARNF, broken out by groups of persons who indicated support for each natural resource management strategy. The most important statements for those persons who supported maintaining current levels of timber harvest addressed (a) the dependency of certain wildlife species on older trees (weight = 24.53), (b) the natural beauty of the forest, and (c) allowing the USFS to set aside more old-growth trees (weight = 17.79). These were the same statements that were most important for those persons supporting a decrease in harvest levels (weights = 26.85, 23.17, and 23.30 respectively). Of these, only the statement which referred to the USFS setting aside more old growth trees showed significantly different weights across the two groups supporting maintaining or decreasing timber harvest levels.

The most important statements for those persons supporting an increase in timber harvest levels addressed (a) decreasing risk associated with wildfire and diseases (weight = 19.17), (b) the natural beauty of the forest (weight = 17.26), and (c) the dependency of certain wildlife species on younger trees (weight = 13.26). Those persons supporting an increase in timber harvest levels showed significantly lower weights than both the other two groups for statements for maintaining current timber harvest levels. Similarly, this group gave significantly higher weights for four out of five of the statements for increasing timber harvest levels.

Table 6. Rank order of the importance of statements regarding timber harvest levels on the ARNF.

	Weights(rank)		
	maintain current levels	increase harvest levels	decrease harvest levels
Some people believe we should maintain current timber harvest levels (1,500 acres per year) because:			
a. It will allow the Forest Service to set aside more old growth trees.	17.79[a] (3)	10.99[b] (4)	23.30[c] (2)
b. Wildlife species dependent on older trees, such as the pinemarten and flammulated owl, would benefit from lower harvest levels.	24.53[a] (1)	7.64[b] (8)	26.85[a] (1)
c. The natural beauty of the forest would receive greater management emphasis.	22.20[a] (2)	17.26[b] (2)	23.17[a] (3)
d. Recreationists on the forest would find a more natural setting.	14.53[a] (4)	8.98[b] (7)	15.85[a] (4)
Some people believe we should allow harvest of higher levels of timber (4,500 acres per year) because:			
e. It will create jobs for rural communities.	4.66[a] (7)	10.26[b] (6)	1.94[c] (4)
f. It will decrease some of the risks associated with wildfire and insect/disease infestations.	7.86[a] (5)	19.17[b] (1)	4.24[c] (5)
g. Wildlife species dependent on younger forests would benefit from higher harvest levels.	5.56[a] (6)	13.26[b] (3)	3.23[a] (6)
h. Roads associated with timber harvest could improve and/or increase motorized recreation opportunities.	1.87[a] (8)	10.50[b] (5)	1.41[a] (8)
i. It more adequately meets the processing capacity of the local mills.	1.01 (9)	1.94 (9)	0.00 (9)

Different superscripts for each statement indicate statistically significant differences in importance weights for that statement between groups supporting each strategy at a significance level of $p \leq .05$.

Livestock grazing. The description of the livestock grazing issue presented to respondents read as follows:

> Public concern with condition of rangelands such as those on the Arapaho & Roosevelt National Forests (**ARNF**) and the Pawnee National Grassland (**PNG**) has recently increased. Of primary interest is the effect of grazing on the ecosystem of rangelands, particularly in areas near rivers, streams, or lakes. There is also concern regarding the effect of grazing on recreation opportunities that are available in a natural area. There is a perception by some people that grazing fees imposed on ranchers are too low and that ranchers are receiving a government subsidy.
>
> Some people believe we should continue current levels of grazing because:
>
> a. It produces revenue for the Federal Treasury.
> b. It is a long established use which ranchers with proper permits depend on.
> c. It promotes rural community stability and economic benefits to local residents and communities.
> d. It produces red meat used by most of the public.
>
> Some people believe we should allow less grazing because:
>
> e. It causes ecological damage to the forest and grassland ecosystems.
> f. It favors cattle at the expense of fish and wildlife.
> g. It is not a cost-effective program.
> h. It will mean more vacant land available for developing recreation opportunities.

Figure 16 presents the proportion of the population who believed each strategy related to livestock grazing in the ARNF & PNG was either good or bad. This issue is characterized by relatively high proportions of the population holding neutral attitudes toward each of the strategies. Less than half of the respondents (42.3%) indicated that continuing current grazing levels on the ARNF & PNG would be a good strategy, as opposed to 32.5 percent feeling this was a bad strategy. One-fourth of those surveyed had neutral attitudes toward this strategy. Similar results were found for the strategy of allowing less grazing on rangelands. About one-half (50.3%) of those surveyed believed that eliminating grazing on the ARNF & PNG would be bad. Figure 17 presents the choice made between the three strategies. The strategy calling for maintaining current grazing levels was supported by the largest proportion of the population (54.3%).

Figure 16. Proportion of respondents who felt each strategy was good/bad
--livestock grazing--

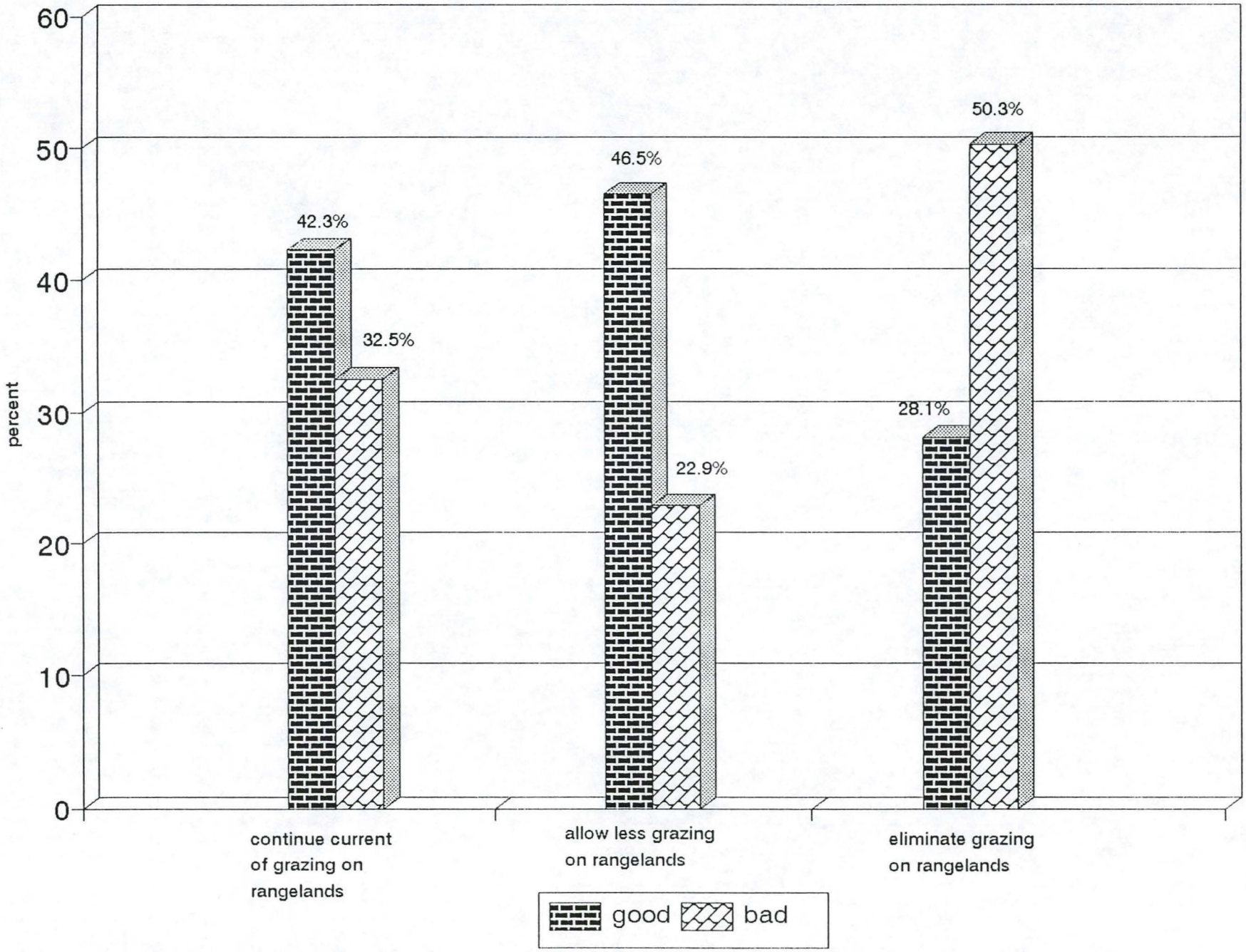


Figure 17. Proportion of respondents supporting each strategy
--livestock grazing--

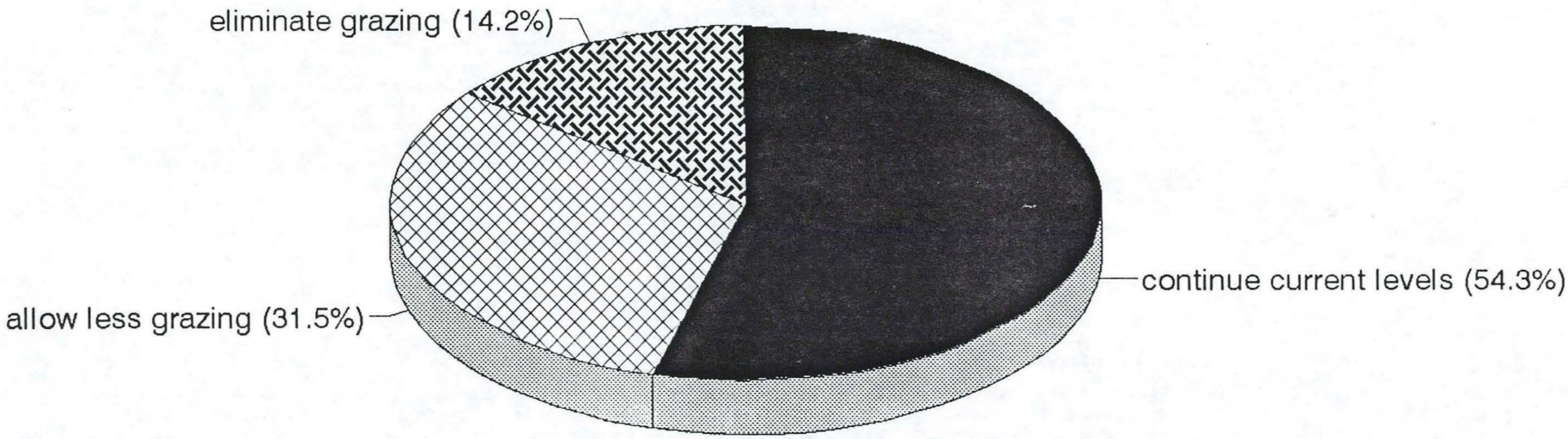


Table 7 presents the proportion of the population who supported one of the three livestock grazing strategies broken down by socio-demographic variable. None of the relationships between choice and socio-demographic variable were found to be significant at $p \leq .05$.

A significant, yet relatively weak, relationship was found between membership in environmental or recreation organizations and support for specific management strategies regarding livestock grazing on the ARNF & PNG ($X^2 = 15.8$; $V_c = .23$). Most of those who reported not being organization members supported maintaining grazing at current levels. On the other hand, a majority of organization members supported either allowing less grazing or eliminating it altogether.

Table 7. Choice of natural resource management strategies regarding livestock grazing broken down by socio-demographic variable and organization membership.

Socio-demographic Variable	N	Choice: Current	Less	None	X^2	V.
Gender:						
Male	197	52.3	32.6	15.1		
Female	165	57.2	29.7	13.1	8.3	
Race:						
White	338	55.0	31.6	13.4		
Black	2	00.0	100.0	00.0		
Indian	4	25.0	25.0	50.0		
Asian	2	50.0	50.0	00.0		
Mexican	7	66.7	33.3	00.0		
Euro-hispanic	4	25.0	00.0	75.0	18.5	
Employment:						
Self-employed	58	59.2	28.6	12.2		
Non self-employed	305	53.4	31.7	14.9	.7	
Full-time	191	54.0	31.3	14.7		
Non full-time	172	54.7	31.1	14.2	.9	
Part-time	52	54.3	32.6	13.1		
Non part-time	311	54.3	30.9	14.8	.3	
Student	28	55.6	37.0	7.4		
Non student	335	54.2	30.6	15.2	1.4	
Homemaker	35	70.0	26.7	3.3		
Non homemaker	328	52.7	31.7	15.6	4.6	
Unemployed	14	36.4	36.4	27.3		
Non unemployed	349	55.0	31.0	14.0	2.2	
Retired	41	50.0	33.3	16.7		
Non retired	322	55.1	31.0	13.9	6.7	

Table 7 continued

Income:						
<15,000	41	48.6	28.6	22.8		
15,000 - 29,999	76	62.7	26.9	10.4		
30,000 - 44,999	89	58.4	29.9	11.7		
45,000 - 59,999	66	49.1	36.4	14.5		
60,000 - 74,999	26	42.1	42.1	15.8		
75,000 - 89,999	18	53.3	40.0	6.7		
90,000 - 104,999	8	62.5	12.5	25.0		
105,000 - 119,999	5	60.0	20.0	20.0		
>120,000	13	38.5	38.5	23.0	24.3	
Community size:						
rural	33	60.7	28.6	10.7		
city; > 300,000	56	54.2	29.2	14.6		
suburb of large city	123	60.2	28.2	11.6		
100,000 - 300,000	25	38.1	52.4	9.5		
50,000 - 100,000	68	50.8	32.8	16.4		
10,000 - 50,000	36	51.5	27.3	21.2		
< 10,000	19	53.3	26.7	20.0	14.2	
Education:						
Elementary	3	100.0	00.0	00.0		
High School	92	53.2	32.9	13.9		
College or Vocational	193	60.5	26.5	13.0		
Graduate School	73	40.3	40.3	19.4	10.5	
Age:						
18 - 25	35	55.2	37.9	6.9		
26 - 40	147	57.4	27.9	14.7		
41 - 55	99	50.0	34.1	15.9		
56 - 65	31	59.3	25.9	14.8		
> 65	24	61.9	38.1	00.0	8.1	
Organization Membership:						
Yes	60	31.0	44.8	24.1		
No	260	59.5	28.3	12.1	15.8**	.23

* indicates X^2 is significant at $p \leq .05$
** indicates X^2 is significant at $p \leq .01$

Table 8 presents the order of importance of several statements regarding the pros and cons to maintaining current levels of livestock grazing or decreasing such levels in the ARNF & PNG, broken out by groups of persons who indicated support for each natural resource management strategy. The most important statements for the group supporting continuing current grazing levels addressed (a) the established nature of this use for the land (weight = 25.86), (b) rural community stability and economic benefits (weight = 25.12), and (c) the revenue produced for the Federal Treasury (weight = 13.63).

The most important statements for the groups supporting less grazing and eliminating grazing were the same. These statement addressed (a) the ecological damage to the forest and grassland ecosystems, (weights = 27.12 and 28.60, respectively), (b) the favoring of cattle at the expense of fish and wildlife (weights = 19.62 and 24.67, respectively), and (c) the cost inefficiency of the grazing program (weights = 14.39 and 19.06, respectively). On all of the statements the groups either supporting current levels of grazing or allowing less grazing gave significantly different weights to statements supporting the strategies. Those supporting less grazing ranked statements for decreasing livestock grazing more important than those who support current levels. On the other hand, reasons for maintaining current levels of grazing were significantly more important to those who support that strategy than those who don't.

Table 8. Rank order of the importance of statements regarding livestock grazing on the ARNF & PNG.

	Weights(rank)		
	continue current levels	allow less grazing	eliminate grazing
Some people believe we should continue current levels of grazing because:			
a. It produces revenue for the Federal Treasury.	13.63[a] (3)	4.24[b] (7)	4.59[b] (6)
b. It is a long established use which ranchers with proper permits depend on.	25.86[a] (1)	10.53[b] (5)	3.14[c] (7)
c. It promotes rural community stability and economic benefits to local residents and communities.	25.12[a] (2)	10.72[b] (4)	5.75[c] (5)
d. It produces red meat used by most of the public.	12.63[a] (4)	3.79[b] (8)	1.93[b] (8)
Some people believe we should allow less grazing because:			
e. It causes ecological damage to the forest and grassland ecosystems.	8.80[a] (5)	27.12[b] (1)	28.60[b] (1)
f. It favors cattle at the expense of fish wildlife.	6.33[a] (6)	19.62[b] (2)	24.67[c] (2)
g. It is not a cost-effective program.	4.29[a] (7)	14.39[b] (3)	19.06[c] (3)
h. It will mean more vacant lands available for developing recreation opportunities.	3.34[a] (8)	9.59[b] (6)	12.26[b] (4)

Different superscripts for each statement indicate statistically significant differences in importance weights for that statement between groups supporting each strategy at a significance level of $p \leq .05$.

Unroaded areas. The description of the unroaded areas issue presented to respondents read as follows:

> There are 1.5 million acres on the Arapaho & Roosevelt National Forests (**ARNF**) and the Pawnee National Grassland (**PNG**). Approximately 300,000 acres are considered unroaded. Unroaded areas are areas where only trails or old, unusable roads are present. Some of the unroaded areas are above timberline, some are shortgrass prairies, and others are forested areas.
>
> There is a considerable public controversy about the future management of unroaded areas. Some people believe that these areas should be available for a wide range of "production", including timber harvest, grazing, oil and gas exploration, and developed and motorized recreation opportunities. Others believe that leaving unroaded areas undisturbed helps to retain old growth forests, maintain biological diversity, and provide for more primitive recreation opportunities.
>
> Some people believe we should manage unroaded areas primarily for "production" because:
>
> a. It will provide rural jobs associated with logging and the woods products industry.
> b. It will increase the habitat available for some types of wildlife species.
> c. It will lessen some of the risks of wildfire and insect and disease infestations.
> d. It will facilitate opportunities for oil and gas exploration.
> e. It will increase opportunities for off-highway vehicular recreation.
>
> Some people believe we should leave unroaded areas primarily "as is" because:
>
> f. It will save money.
> g. Some types of wildlife need this type of habitat.
> h. It will preserve old-growth forests as a component of the entire forest ecosystem.
> i. It will maintain resource management options for future generations.
> j. They provide recreation opportunities that emphasize naturalness and solitude.

Figure 18 presents the proportion of the population who believed each strategy regarding the management of unroaded areas in the ARNF & PNG was good or bad. Most of the population surveyed (70.3%) felt that managing these areas primarily for production was a bad strategy while nearly 80 percent felt that leaving unroaded areas as is would be a good strategy. About one-half (51.8%) believed that maintaining a balance between managing unroaded areas for production and leaving them as is would be a good strategy. Figure 19 presents the choice made between these strategies. Over one-half of the population supported leaving unroaded areas as is (52.5%), however, goodness-of-fit chi-square analysis ($\underline{X}^2 = 1.68$; $\underline{p} \geq .05$) indicated that this was not significantly greater than the proportion of the population that supported maintaining a balance between managing for production and leaving as is (46.2%).

Figure 18. Proportion of respondents who felt each strategy was good/bad
--unroaded areas--

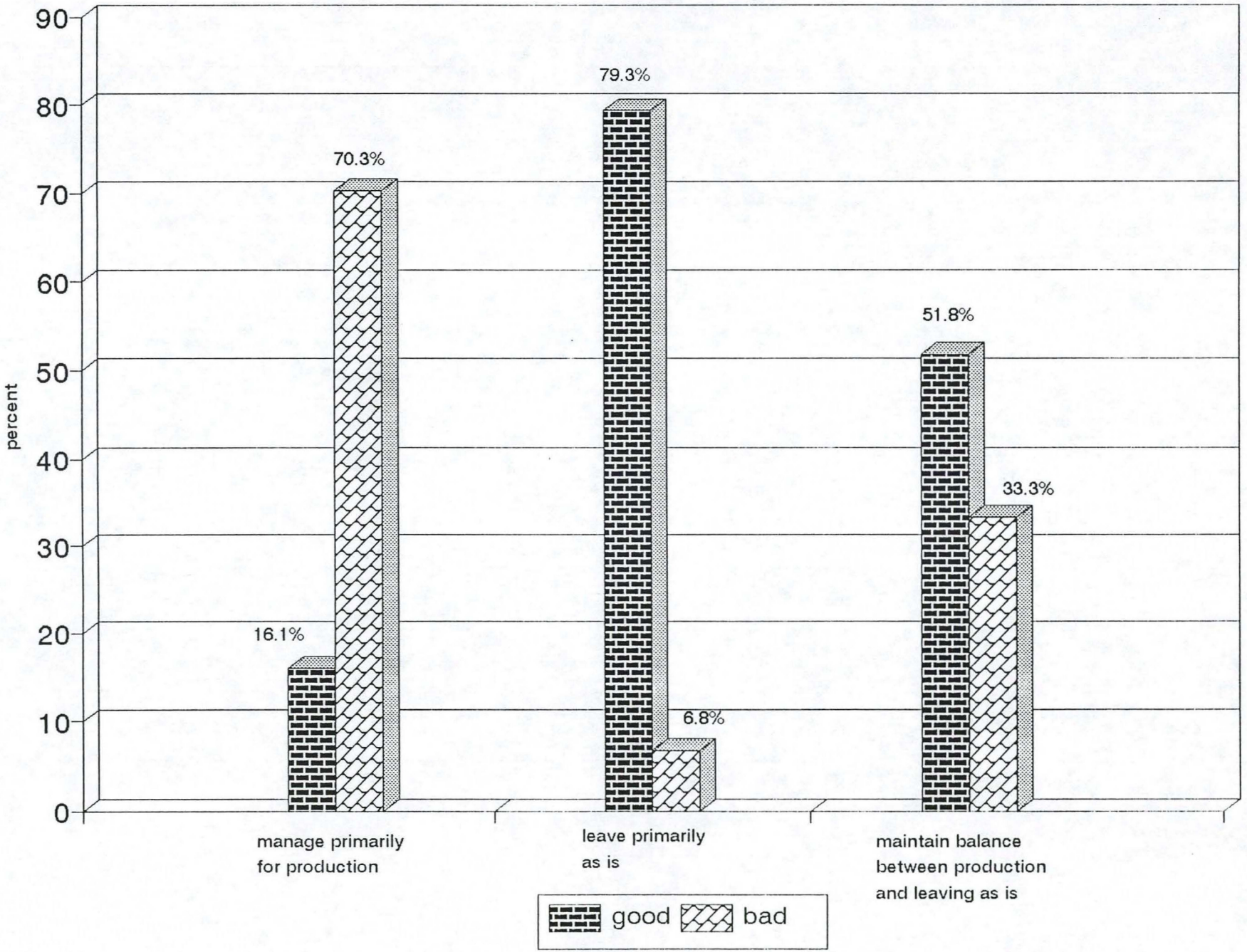


Figure 19. Proportion of respondents supporting each strategy
--unroaded areas--

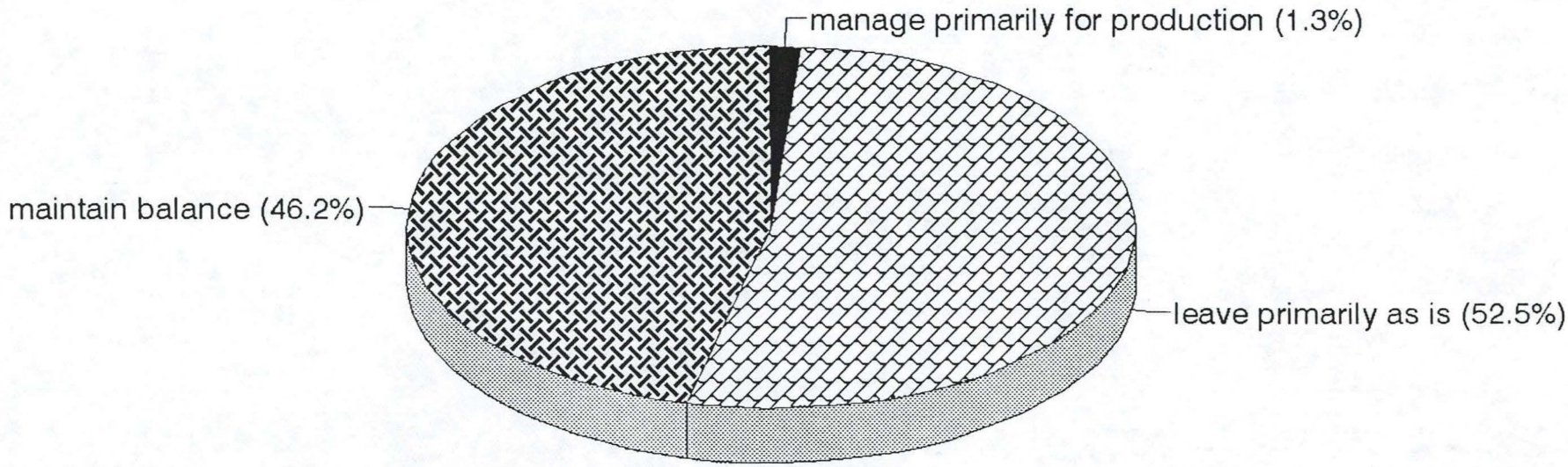


Table 9 presents the proportion of the population who supported each unroaded areas management strategy broken down by socio-demographic variable. None of the relationships were found to be significant between strategy choice and socio-demographic variable.

A significant, but weak, relationship was found between membership in environmental or recreation organizations and which management strategies were supported ($X^2 = 11.8$; $V_c = .19$). A high majority of those persons who belong to these organizations supported leaving unroaded areas as is, while nonmembers were split between leaving these areas as is and maintaining a balance between leaving as is and using them for production.

Table 9. Choice of natural resource management strategies regarding the management of unroaded areas broken down by socio-demographic variable and organization membership.

Socio-demographic Variable	N	Choice			X^2	V_c
		Productive	As is	Balance		
Gender:						
Male	197	1.1	54.7	44.2		
Female	165	1.4	49.3	49.3	2.4	
Race:						
White	338	1.3	52.3	46.4		
Black	2	00.0	100.0	00.0		
Indian	4	00.0	75.0	25.0		
Asian	2	00.0	100.0	00.0		
Mexican	7	00.0	16.7	83.3		
Euro-hispanic	4	00.0	75.0	25.0	8.0	
Employment:						
Self-employed	58	1.9	55.8	42.3		
Non self-employed	305	1.1	51.9	47.0	1.1	
Full-time	191	1.2	54.5	44.3		
Non full-time	172	1.1	51.9	47.0	.9	
Part-time	52	00.0	56.3	43.7		
Non part-time	311	1.5	51.8	46.7	1.4	
Student	28	00.0	59.3	40.7		
Non student	335	1.3	51.9	46.8	1.0	
Homemaker	35	00.0	54.8	45.2		
Non homemaker	328	1.4	52.2	46.4	2.5	
Unemployed	14	9.1	54.5	36.4		
Non unemployed	349	1.0	52.4	46.6	6.0	
Retired	41	00.0	46.5	53.9		
Non retired	322	1.4	53.5	46.1	3.4	

Table 9 continued

Income:						
<15,000	41	2.6	68.4	29.0		
15,000 - 29,999	76	1.4	46.4	52.2		
30,000 - 44,999	89	00.0	51.2	48.8		
45,000 - 59,999	66	00.0	53.6	46.4		
60,000 - 74,999	26	5.6	27.8	66.6		
75,000 - 89,999	18	00.0	62.5	37.5		
90,000 - 104,999	8	12.5	62.5	25.0		
105,000 - 119,999	5	00.0	80.0	20.0		
>120,000	13	00.0	53.8	46.2	31.6	
Community size:						
rural	33	00.0	40.0	60.0		
city; > 300,000	56	00.0	67.3	32.7		
suburb of large city	123	1.8	46.8	51.4		
100,000 - 300,000	25	00.0	50.0	50.0		
50,000 - 100,000	68	1.7	66.1	32.2		
10,000 - 50,000	36	00.0	41.7	58.3		
< 10,000	19	6.7	40.0	53.3	26.0	
Education:						
Elementary	3	00.0	33.3	66.7		
High School	92	2.5	39.5	58.0		
College or Vocational	193	00.0	53.9	46.1		
Graduate School	73	2.9	65.7	31.4	20.6	
Age:						
18 - 25	35	00.0	62.1	37.9		
26 - 40	147	2.4	50.4	47.2		
41 - 55	99	1.1	56.4	42.5		
56 - 65	31	00.0	46.2	53.8		
> 65	24	00.0	40.9	59.1	8.6	
Organization Membership:						
Yes	60	00.0	71.7	28.3		
No	260	2.7	47.7	49.6	11.8**	.19

* indicates X^2 is significant at $p \leq .05$
** indicates X^2 is significant at $p \leq .01$

Table 10 presents the order of importance of several statements regarding the pros and cons to managing unroaded areas for "production" or leaving them primarily "as is", broken out by groups of persons who indicated support for each natural resource management strategy. The low size of the group who supported managing these area primarily for production prohibits useful analysis of the weights of statements given by this group. The most important statements for those persons supporting leaving unroaded areas "as is" addressed (a) the preservation of old-growth forests within an ecosystem (weight = 23.39), (b) the need for a natural habitat for some types of wildlife (weight = 20.54), and (c) maintaining future resource management options (weight = 18.93). None of the weights for these statements were significantly different than those given by the "production" group, however, all were significantly greater than those given these statements by the groups supporting a balance between "production" and leaving "as is". Finally, the most important statements for those persons supporting a balance between the two more extreme options were (a) the need for a natural habitat for some types of wildlife (weight = 15.80), (b) lessening the risks of wildfire and disease by using these areas for production (weight = 13.49), and (c) preserving old-growth forests within an ecosystem (weight = 13.20).

Table 10. Rank order of the importance of statements regarding the management of unroaded areas on the ARNF & PNG.

	Weights (rank)		
	manage for production	leave primarily as is	maintain balance
Some people believe we should manage unroaded areas primarily for "production" because:			
a. It will provide rural jobs associated with logging and the woods products industry.	0.00[a] (8)	2.93[a] (8)	8.14[b] (7)
b. It will increase the habitat available for some types of wildlife species.	30.00[a] (1)	4.58[b] (6)	13.13[c] (4)
c. It will lessen some of the risks of wildfire and insect/disease infestation.	30.00[a] (1)	3.76[b] (7)	13.49[c] (2)
d. It will facilitate opportunities for oil and gas exploration.	10.00[ab] (4)	1.26[a] (10)	3.92[b] (10)
e. It will increase opportunities for off-highway vehicular recreation.	0.00[ab] (8)	1.37[a] (9)	4.55[b] (9)
Some people believe we should leave unroaded areas primarily "as is" because:			
f. It will save money.	0.00 (8)	6.30 (5)	5.24 (8)
g. Some types of wildlife need this type of habitat.	13.33[ab] (3)	20.54[a] (2)	15.80[b] (1)
h. It will preserve old-growth forests as a component of the entire forest ecosystem.	6.67[ab] (5)	23.39[a] (1)	13.20[b] (3)
i. It will maintain resource management options for future generations.	6.67[ab] (5)	18.93[a] (3)	11.94[b] (5)
j. They provide recreation opportunities that emphasize naturalness and solitude.	3.33[ab] (7)	16.93[a] (4)	10.58[b] (6)

Different superscripts for each statement indicate statistically significant differences in importance weights for that statement between groups supporting each strategy at a significance level of $p \leq .05$.

Old-growth forests. The description of the old-growth forests issue presented to respondents read as follows:

> Old-growth forests are defined by professional forecasters as areas where there are: (a) two or more tree species, (b) of many different ages and sizes, (c) several large cone-bearing trees such as evergreen trees which are at least 200 years old, (d) several large standing dead trees per acre, and (e) several tons of large fallen trees per acre.
>
> Management of old-growth in the Arapaho & Roosevelt National Forests (**ARNF**) is a controversial subject regarding how much old-growth there should be; where the old -growth should be located; and what the trade-offs are between maintaining old-growth forests versus use of old-growth areas for developed motorized recreation, timber harvest and oil and gas exploration.
>
> Some people believe we should protect old-growth forests because:
>
> a. It will allow fewer trees to be harvested for timber.
> b. It will maintain a greater diversity of wildlife species that need old-growth forests.
> c. It will reduce the amount of soil erosion caused by logging roads.
> d. There is not enough old-growth forest left.
> e. There are aesthetic and spiritual values to protecting old-growth forests.
>
> Some people believe we should use old-growth forests for timber harvest because:
>
> f. Some old-growth stands have deteriorated and will rapidly lose their economic value for timber production if not harvested.
> g. Old-growth can provide a higher volume per acre of timber available for homes, furniture and raw materials.
> h. It will decrease atmospheric pollution from carbon-dioxide.
> i. It will allow for "productive" uses of the forest areas, such as timber harvest, oil and gas exploration and developed recreation.
> j. Many acres of forest land are already protected as wilderness.

Figure 20 presents the proportion of the population who believed each strategy regarding the management of old-growth forests in the ARNF would be good or bad. Most of those surveyed held a negative attitude toward managing these areas primarily for production (65.8%). Nearly three-fourths of the population felt that managing old-growth areas for protection would be a good strategy (74.7%). Finally, about one-half of the population (49.4%) believed that a balance between managing old-growth forests for production and protection would be a good strategy. Figure 21 presents the choice made between these strategies. About one-half of the population supported maintaining a balance between protection and using old-growth for timber harvest (50.5%), however, 46.9 percent supported protecting old-growth forests. Goodness-of-fit chi-square analysis indicated that these proportions were not significantly different ($\underline{X}^2 = .33$; $\underline{p} \geq .05$).

Figure 20. Proportion of respondents who felt each strategy was good/bad
--old-growth forests--

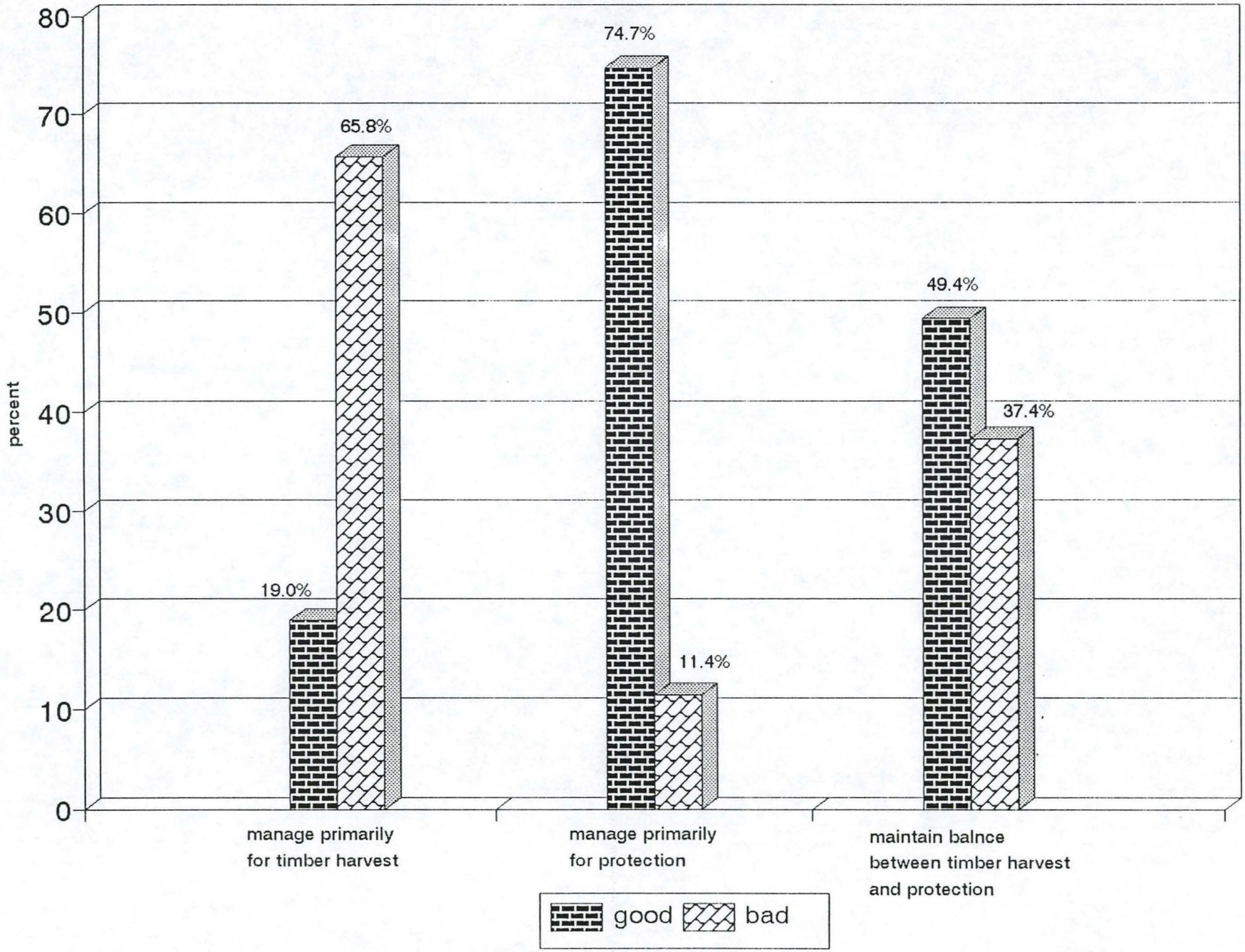


Figure 21. Proportion of respondents supporting each strategy
--old-growth forests--

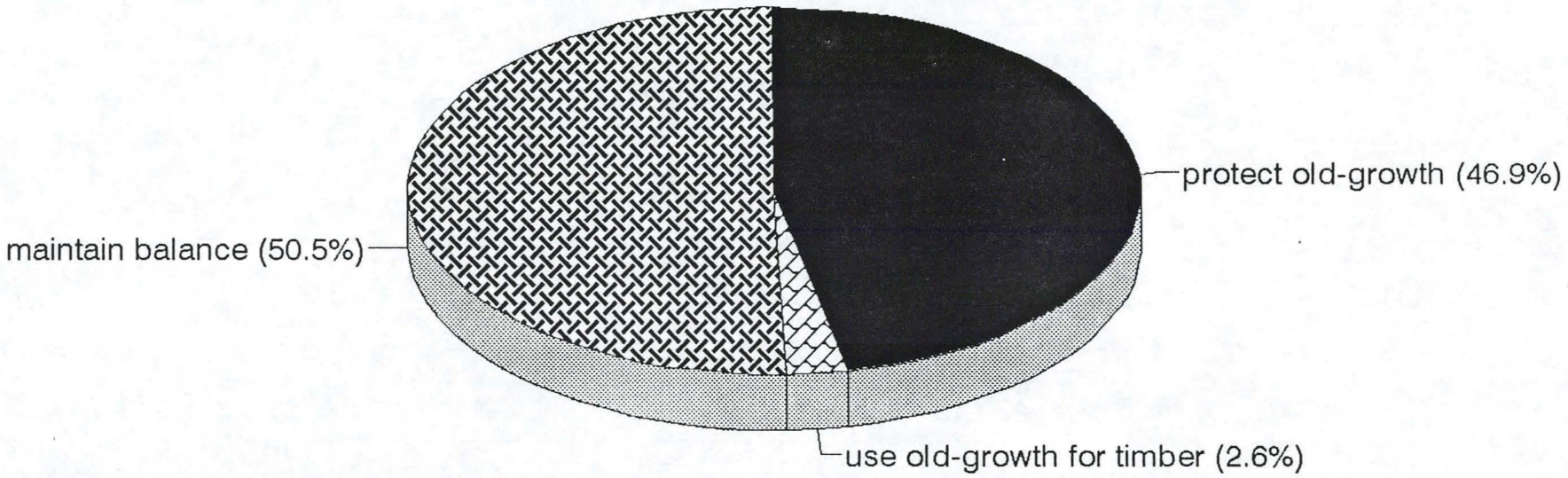


Table 11 presents the proportion of the population who supported each management strategy regarding old-growth forests broken down by socio-demographic variable. The only significant relationship found was regarding those persons who were employed part-time versus non part-time employees ($X^2 = 19.9$). Persons employed part-time were more likely to support using old-growth forests than were persons not employed part-time, although for both groups, this strategy was the least supported. Persons not working part-time appeared more likely to support maintaining a balance between protecting old-growth forests and using them for timber harvest. This relationship appears to be relatively weak ($V_c = .25$).

There was a significant, yet relatively weak, relationship found between membership in an environmental or recreation organization and which management strategy was supported ($X^2 = 13.7$; $V_c = .21$). Most of those persons who reported membership in an organization supported protecting old-growth forests while nonmembers primarily supported maintaining a balance between protecting old-growth forests and using them for timber harvest.

Table 11. Choice of natural resource management strategies regarding the management of old-growth forests broken down by socio-demographic variable and organization membership.

Socio-demographic Variable	N	Choice: Protect	Use	Balance	X^2	V.
Gender:						
Male	197	49.1	2.9	48.0		
Female	165	44.4	2.2	53.4	3.1	
Race:						
White	338	46.7	2.7	50.6		
Black	2	00.0	00.0	100.0		
Indian	4	75.0	00.0	25.0		
Asian	2	100.0	00.0	00.0		
Mexican	7	33.3	00.0	66.7		
Euro-hispanic	4	25.0	00.0	75.0	5.9	
Employment:						
Self-employed	58	45.1	00.0	54.9		
Non self-employed	305	47.3	3.1	49.6	6.8	
Full-time	191	49.7	1.9	48.4		
Non full-time	172	44.0	3.3	52.7	2.5	
Part-time	52	45.8	10.4	43.8		
Non part-time	311	47.1	1.1	51.7	19.9**	.25
Student	28	55.6	3.7	40.7		
Non student	335	46.1	2.5	51.4	1.2	
Homemaker	35	48.3	00.0	51.7		
Non homemaker	328	46.8	2.8	50.4	.9	
Unemployed	14	63.6	00.0	36.4		
Non unemployed	349	46.3	2.7	51.0	1.4	
Retired	41	35.1	2.7	62.2		
Non retired	322	48.7	2.6	48.7	3.6	

Table 11 continued

Income:						
<15,000	41	52.8	5.6	41.6		
15,000 - 29,999	76	46.9	00.0	53.1		
30,000 - 44,999	89	39.2	00.0	60.8		
45,000 - 59,999	66	50.0	00.0	50.0		
60,000 - 74,999	26	52.6	10.5	36.9		
75,000 - 89,999	18	50.0	12.5	37.5		
90,000 - 104,999	8	50.0	12.5	37.5		
105,000 - 119,999	5	60.0	00.0	40.0		
>120,000	13	61.5	00.0	38.5	35.1	
Community size:						
rural	33	35.7	3.6	60.7		
city; > 300,000	56	53.1	00.0	46.9		
suburb of large city	123	42.7	2.9	54.4		
100,000 - 300,000	25	42.9	00.0	57.1		
50,000 - 100,000	68	57.6	6.8	35.6		
10,000 - 50,000	36	45.5	00.0	54.5		
< 10,000	19	37.5	00.0	62.5	20.5	
Education:						
Elementary	3	33.3	00.0	66.7		
High School	92	30.3	5.3	64.4		
College or Vocational	193	49.1	1.2	49.7		
Graduate School	73	61.4	2.9	35.7	20.1	
Age:						
18 - 25	35	42.9	3.6	53.6		
26 - 40	147	46.7	2.5	50.8		
41 - 55	99	54.8	3.2	41.9		
56 - 65	31	28.0	00.0	72.0		
> 65	24	26.3	5.3	68.4	12.5	
Organization Membership:						
Yes	60	67.8	00.0	32.2		
No	260	41.9	3.7	54.5	13.7**	.21

* indicates X^2 is significant at $p \leq .05$
** indicates X^2 is significant at $p \leq .01$

Table 12 presents the order of importance of several statements regarding the pros and cons to using old-growth forests for timber harvest versus protecting old-growth forests, broken out by groups of persons who indicated support for each natural resource management strategy. The most important statements for those persons supporting the use of old-growth forests for timber production addressed (a) the loss of economic value of old-growth if not harvested (weight = 21.70), (b) the diversity of wildlife species needing old-growth forests (weight = 12.50), and (c) allowing other productive uses of the forest (weight = 12.41). The statements regarding the economic value of old growth and allowing other productive uses were ranked significantly more important by this group than the other two groups. Although maintaining diversity of wildlife was ranked as the second most important statement by this group, it was significantly less important than for the other two groups.

The most important statements for those persons supporting the protection of old-growth forests were (a) maintaining a diversity of wildlife species needing old-growth forests (weight = 27.12), (b) that there is not enough forests left (weight = 21.50), (c) reducing the amount of soil erosion caused by logging roads (weight = 17.61). All three of these statements were given significantly greater weights by this group than all other groups.

Finally, the most important statements for those persons supporting a balance between using old-growth and protecting old-growth addressed (a) maintaining a diversity of wildlife species needing old-growth forests (weight = 22.11), (b) reducing the amount of soil erosion caused by logging roads (weight = 14.76), and (c) not enough old-growth forests left (weight = 9.95).

Table 12. Rank order of the importance of statements regarding the management of old-growth forests on the ARNF.

	Weights(rank)		
	use old-growth for timber	protect old-growth	maintain balance
Some people believe we should protect old-growth forests because:			
a. It will allow fewer trees to be harvested for timber.	8.33[ab] (7)	12.48[a] (5)	7.43[b] (7)
b. It will maintain a greater diversity of wildlife species that need old-growth forests.	12.50[a] (2)	27.12[b] (1)	22.11[c] (1)
c. It will reduce the amount of soil erosion caused by logging roads.	11.67[ab] (4)	17.61[a] (3)	14.76[b] (2)
d. There is not enough old-growth forests left.	8.33[a] (7)	21.50[b] (2)	9.95[a] (3)
e. There are aesthetic and spiritual values to protecting old growth forests.	9.17[a] (6)	17.46[b] (4)	7.74[a] (6)
Some people believe we should use old-growth forests for timber harvest because:			
f. Some old-growth stands have deteriorated and will rapidly lose their economic value for timber production if not harvested.	21.70[a] (1)	0.90[b] (7)	9.65[c] (4)
g. Old-growth can provide a higher volume per acre of timber available for homes, furniture and raw materials.	9.25[a] (5)	0.52[b] (9)	6.83[a] (9)
h. It will decrease atmospheric pollution from carbon-dioxide.	1.56[ab] (10)	1.29[a] (6)	6.19[b] (10)
i. It will allow for "productive" uses of the forest areas, such as timber harvest, oil and gas exploration, and developed recreation.	12.41[a] (3)	0.44[b] (10)	7.38[a] (8)
j. Many acres of forest land are already protected.	5.07[ab] (9)	0.67[a] (8)	7.96[b] (5)

Population Demographics

Table 13 provides various demographic characteristics of the subject population for this study.

Table 13. Population demographics

A. Gender:	Male	54.0%			
	Female	46.0%			
B. Age:	18 - 25 years	10.5%	age range:		18 - 84
	26 - 35 years	27.5%	average age:		41.34 years
	36 - 45 years	31.5%			
	46 - 55 years	14.0%			
	56 and above	16.5%			
C. Race:	White, not of hispanic origin			94.3%	
	Black, not of hispanic origin			.6%	
	American Indian/Alaskan Native			1.1%	
	Asian or Pacific Islander			.6%	
	Mexican			2.0%	
	European Hispanic			1.1%	
D. Education:	Average education		14.96 years		
E. Employment (may check more than one):			self-employed	16.0%	
			full-time	52.3%	
			part-time	14.3%	
			student	7.7%	
			homemaker	9.6%	
			unemployed	3.9%	
			retired	11.3%	
F. Income:	< 15,000		12.0%		
	15,000 - 29,999		22.3%		
	30,000 - 44,999		24.7%		
	45,000 - 59,999		19.4%		
	60,000 - 74,999		7.7%		
	75,000 - 89,999		5.4%		
	90,000 - 104,999		2.6%		
	105,000 - 119,999		1.7%		
	> 120,000		4.2%		
G. Size of community:	farm or rural				9.2%
	major metropolitan area (> 30,000)				15.6%
	suburb of major metropolitan area				34.2%
	city (nonsuburb) 100,000 - 300,000				6.9%
	city (nonsuburb) 50,000 - 100,000				18.9%
	town (nonsuburb) 10,000 - 50,000				10.0%
	town (nonsuburb) under 10,000				5.2%

SUMMARY

The goal of this research effort was to identify the attitudes and preferences of Northern Front Range residents of Colorado regarding outdoor recreation in Colorado and natural resource management issues. To address this goal, the objectives of this research effort were as follows.

1. To determine the level and types of recreational use, including where people residing in the Northern Front Range region recreate in the outdoors in Colorado.

2. To determine preferences for and perceived availability of specific recreation facilities,

3. To determine use and preferences for specific recreation settings,

4. To determine the affiliation and involvement in environmental and recreational organizations, and

5. To determine public attitudes toward and support for specific management strategies involving several natural resource management issues, as they relate to the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

Recreation use

Overall it was found that a large majority of the residents of the Northern Front Range region participate in some form of outdoor recreation, primarily in the summer months. About one-third of the population, however, indicated significant outdoor recreation participation each of the fall, winter, and spring months also. The prevalence of outdoor recreation for the Northern Front Range population is also shown in that an individual spends nearly six days per month engaging in some form of outdoor recreation, with the average trip length being about one and a half days, the approximate length of a weekend trip.

The most popular outdoor recreation activities fall under the category of nonconsumptive activities. Auto sightseeing, picnicking, camping, day hiking and viewing wildlife were the top five activities. Adventure activities such as canoeing/kayaking, rock climbing, mountain climbing, backpacking, and cross-country skiing were participated in by relatively few people. Although fishing is participated in by nearly half of the population, another consumptive activity, hunting, is participated in by less than one-sixth of the population.

While one-third of the respondents reported generally taking day trips, those people using special lodging during a trip

reported using National Forest campgrounds more often than other types of lodging. Combining the various camping type lodgings, it appears that nearly half of the population camp on an outdoor recreation trip, with nearly two-thirds of these people using a tent as their primary shelter.

A finding supported by previous research, the most popular source of information regarding places to participate in outdoor recreation was friends and relatives. Brochures and guidebooks were also prevalent sources of information. Less than one-half of the population reported using a public agency office or the radio as a source of places to recreate in the outdoors.

Most of the respondents indicated that they have visited zone 3 for the purpose of outdoor recreation in the past 12 months. This is an expected result since zone 3 includes the Front Range region, where the sampled population was drawn from. Zone 1 (northeast Colorado) and zone 5 (west central Colorado) were also popular areas for outdoor recreation, as nearly one-half of the respondents indicated participating in outdoor recreation in these regions of the state. All six of the regions were reported as outdoor recreation destinations by at least one-third of the sampled population.

Preference and availability of recreation facilities

Recognizing that people bring a diversity of motivations and preferences to natural areas when participating in outdoor recreation, three distinct groups of recreationists were identified. These groups, based on the extent to which facilities were desired, included (a) a high facility dependent group, that is, those persons with preferences for many man-made facilities, (b) a moderate facility dependent group, persons desiring a moderate amount of facilities, and (c) a low facility dependent group, persons desiring few developed facilities.

The high facility dependent group showed a preference for all facilities except undeveloped campsites and group shelters. Of those facilities desired by this group, only hot shower facilities were viewed as being available by less than one-half of this group, while barrier-free access for persons with disabilities was viewed as available by just over one-half of this group.

The moderate facility dependent group showed a preference for both types of campsites, undeveloped and developed. Facilities which this group found undesirable were hot shower facilities, flush toilet facilities, and group shelters. Similar to the high facility dependent group, most of the facilities desired by this group were seen as being available by a large majority. The only exception was barrier-free access for persons with disabilities. Only one-half of this group felt this type of

facility was available.

The low facility dependent group showed preferences for the least number of facilities. An example of the type of user this may be is that this group showed high preference for undeveloped campsites, while few showed a desire for developed campgrounds. Many of the facilities desired by this group emphasized maintaining a natural focus to outdoor recreation, such as, scenic overlooks, nearby streams and lakes, and garbage cans and dumpsters. Nearly all of the facilities desired were viewed as being available by most of this group. As with the other groups, the perceived availability of barrier-free access for persons with disabilities was low.

Overall it appears that, for all groups, the availability of the types of facilities they preferred was high. The most obvious exception to this statement concerns the availability of facilities enabling better access for visitors with disabilities. While this type of facility was desired by all three groups, all found it to be less available than the other facilities.

Use and preference of specific recreation settings

The most preferred recreation setting was the "primitive setting", one-third of the respondents ranked this setting highest in preference. The second most preferred setting was "roaded natural", followed by "semiprimitive nonmotorized", "semiprimitive motorized", and "rural" settings. These settings differed, however, in the extent to which those persons who most preferred a setting actually participated most in that setting. For example, whereas the primitive setting was the most preferred setting, less than one-half of those persons indicated they generally recreate in this setting. On the other hand, although only 12 percent preferred a rural setting, over 9 out of ten of these persons also recreated in this setting the most. Both "semiprimitive" settings were also recreated in most by one-half or less of those persons most preferring each setting.

If a recreationist prefers a certain setting, but does not generally recreate there, where is he or she going? For all settings, a higher proportion of persons actually recreated in the preferred setting than any others, however, in each of the primitive and semiprimitive settings, more than half actually recreated in a different setting. Only in the roaded natural and rural settings can one say that a prohibitive proportion of persons generally recreate in their preferred setting. The most common setting recreated in but not preferred was the rural setting, where in all cases, about one-fifth (18% - 20%) of those persons preferring one of the other settings generally recreated in this one. The roaded natural setting also took many of those persons preferring a different setting (12.3% - 23.1%).

The general finding that a large proportion of the population do not recreate most in the same setting they prefer brings up two questions. First, is the availability of some settings less than the actual demand for that setting? Examination of table 14 may shed some light on this question.

Table 14. Proportion of the sampled population who recreates most in each setting

	Primitive (33.7%)	Semiprimitive Nonmotorized (18.1%)	Semiprimitive Motorized (14.0%)	Roaded Natural (21.6%)	Rural (12.6%)
Actual use	15.9%	14.2%	16.4%	26.8%	26.8%

Note: Percentages in parentheses are the proportion of the population who most preferred that setting.

For both the primitive and semiprimitive nonmotorized settings, a smaller proportion of the total public primarily recreates in each setting than prefers each setting. While this says little about the reason for this dissonant behavior, examination of the three most developed settings is more enlightening. For each of the semiprimitive motorized, roaded natural, and rural settings, a greater proportion of the population primarily recreates in each setting than rates them as most preferred. This indicates that these settings are provided equal to or greater than the extent to which they are most preferred. Therefore, the fact that not all person who prefer these settings primarily recreate there appears to address a second question. Is there a problem regarding the awareness of existing settings by the public? It is possible that people who prefer, for example, a primitive or semiprimitive nonmotorized setting but do not recreate there is due to a lack of knowledge where such settings are. This suggests that an information campaign describing recreation opportunities for all settings may help match the supply of settings with their demand. Future research , however, should consider other possible constraints to recreating in one's most preferred setting, such as inconvenient location and fear of crowded conditions.

Several questions regarding how the public feels about Forest Service employees were also presented. For the most part, attitudes toward the Forest Service employees is positive. Most respondents agreed that employees are knowledgeable about management of a particular area, and enjoy seeing Forest Service employees while recreating. However, over one-half of those surveyed indicated that they seldom see Forest Service employees.

Affiliation and involvement in environmental and recreation organizations

Most of the surveyed population do not belong to any environmental or recreation groups. Of those that do, the most popular groups are Greenpeace, the National Wildlife Federation and the Sierra Club, although less than 10 percent of the total population belongs to any one of these groups. In addition, the level of activism for the national groups appears fairly low. On the other hand, local groups, such as Colorado Environmental Coalition and Colorado Mountain Club, while boasting less membership than the national groups, also appears to have more active membership.

Public attitudes toward natural resource management issues on the ARNF and PNG

The natural resource management issues examined were motorized versus nonmotorized recreation, timber harvest, livestock grazing, unroaded areas, and old growth forests. All of these issues were relatively important to the sampled population. Attitudes toward and support of specific management strategies for each issue are summarized below. In addition, the importance of specific statements regarding the various natural resource management strategies were also assessed in this study. This knowledge is important since research in social psychology and natural resource management has identified the importance of management understanding beliefs salient to the population for which an information program is targeted.

Motorized versus nonmotorized recreation. The most positive attitude was for emphasizing nonmotorized recreation. Similarly, a significant majority supported this strategy given a choice between the two. There were also significant differences in the importance of the statements regarding an emphasis on motorized versus nonmotorized recreation between the groups who supported each strategy. As might be expected, persons who supported a strategy emphasizing nonmotorized recreation believed that reducing the needs for more roads, reducing the impact of recreation, and enhancing the recreation experience were the most important considerations for determining a strategy. On the other hand, persons supporting a motorized recreation emphasis cited the frequency of driving for pleasure and the provision of opportunities for persons with disabilities as the most important considerations.

Socio-demographic characteristics had little predictive power regarding what management strategy would be supported. On the other hand, persons who belonged to an environmental or recreation organization were more likely to support emphasizing nonmotorized recreation than those persons not belonging to such

an organization.

Timber harvest. Most of the sampled population believed that keeping timber harvest levels at current levels would be good, and that increasing timber harvest levels would be bad. The public was split evenly between positive and negative attitudes toward decreasing harvest to below current levels. Given a choice between the three strategies, most of those surveyed selected maintaining current harvest levels, while less than one in ten voted to increase harvest levels. There were also several significant differences found in the importance of statements regarding maintaining current levels of timber harvest versus increasing levels across groups supporting the different management strategies. Both persons who supported maintaining current levels of timber harvest and those supporting decreasing harvest levels indicated that wildlife species dependent on older trees, concern for the natural beauty of the forest, and setting aside old-growth are the most important considerations in determining a management strategy. On the other hand, those who supported increasing harvest levels cited decreased risks of wildfire/disease and wildlife species dependent on younger trees as the most important considerations. This group also showed a concern for the natural beauty of the forest, though less so than the other two groups.

Only age and membership in an environmental or recreation organization appeared to have a predictive relationship with strategy supported, although in both cases, this relationship was fairly weak. Older respondents tended to support maintaining current levels of harvest almost exclusively, whereas the younger respondents also supported decrease levels of timber harvest. However, overall, all groups primarily supported maintaining current levels. While everyone primarily supported maintaining current levels regardless of organization membership, persons who do belong to such organizations, are more likely to support decreasing harvest levels than nonmembers, with the opposite being true for support of increasing harvest levels.

Livestock grazing. This issue was characterized by a relatively high proportion of the population having neutral attitudes toward the management strategies involved. For example, although the strategies which involved continuing current grazing levels and allowing less grazing on rangelands were seen more often as good strategies than bad, less than one-half of the surveyed population believed this. That is, a significant portion of the population were indifferent about these two strategies (between 25% and 30%). About one-half of the population felt that eliminating grazing would be a bad strategy, while one-third had a positive attitude. Choosing between one of the three strategies, very few persons supported eliminating grazing altogether. Just over one-half supported continuing current levels of grazing, while about one-third

supported allowing less grazing. The importance of statements regarding current versus lower levels of grazing were consistent with the strategy that was supported. Persons supporting either less grazing or the elimination of grazing altogether placed more importance on reasons for decreasing grazing levels, such as the potential for ecological damage, favoring cattle over fish and wildlife, and cost inefficiency. On the other hand, persons supporting current levels found statements supporting this strategy as most important, including the long establishment of grazing in the area and the promotion of rural community stability.

Socio-demographic characteristics, again, said nothing about what strategy would be supported. However, those persons who belong to an environmental or recreation group were more likely to support allowing less grazing, while nonmembers were most likely to support maintaining current levels of grazing, although this relationship is relatively weak.

Unroaded areas. A large majority of the surveyed population held a positive attitude toward leaving unroaded areas "as is", whereas a nearly equally large majority felt that managing these areas for production would be bad. About one-half of the population held a positive attitude toward maintaining a balance between the two. Given a choice between the three strategies, The population was evenly split between supporting a strategy which called for leaving unroaded areas "as is" and maintaining a balance between protecting these areas and managing for production. Only one in 100 respondents support managing unroaded areas primarily for production. Most of the differences in the importance of various statements were found between the group supporting leaving unroaded areas "as is" and maintaining a balance between the two extreme strategies. Those persons supporting a "leave as is" strategy felt more strongly towards preserving old-growth as a component of the ecosystem and a concern for wildlife needing unblemished habitat than did those supporting a balance, although both groups felt these were the most important considerations. However, those supporting the "leave as is" strategy also found maintaining future management options and providing natural recreation opportunities as important. On the other hand, those supporting a balanced strategy cited the mitigation of the risks of wildlife and insect/disease infestation as an important consideration. Little can be said about those persons who supported a strategy calling for management for production because so few people actually supported this strategy.

Only membership in an environmental or recreation organization showed any predictability of management strategy support. Persons who belong to an organization were most likely to support leaving unroaded areas as is while nonmembers were split between this strategy and maintaining a balanced strategy.

Old-growth forests. A large majority of the population also had positive attitudes toward managing old-growth forests for protection. Also, a majority of the population believed that managing old-growth forests primarily for timber harvest would be bad. Nearly one-half of the population had a positive attitude toward maintaining a balance between timber harvest and protection. Choosing between one of the three strategies, the public was evenly split between maintaining a balanced strategy and protecting the old-growth forests. Only about three in 100 persons voted for using old-growth forest primarily for timber harvest.

Since so few people supported using old-growth primarily for timber harvest, little may be said about the importance of statements as ranked by this group. However, considering the groups who supported protecting old-growth forests versus maintaining a balanced strategy, there were differences in the importance weights given each statement between these groups. For example, those persons who supported protection of old-growth forests cited maintenance of high wildlife diversity, reduction of soil erosion, and concern for the few old-growth forests left. Persons who supported a balanced strategy also found these statements as being the most important consideration, however gave them significantly lower weights than did the other group.

Socio-demographic characteristics again said little about the choice of management strategy. A significant but weak relationship was found between persons who are employed part-time versus non part-time. The part-time workers were more likely to support using old-growth forests for timber than were non-part time persons although both appeared to be primarily split between protecting old-growth forests and maintaining a balanced strategy. There was also a significant but relatively weak relationship between organization membership and strategy choice. Persons who belong to an environmental or recreation organization were most likely to support a protection strategy, while nonmembers were most likely to support a balanced strategy.

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APPENDIX

Phone Survey and Mail-back Questionnaire

Phone Survey

Hello, my name is _____. I am a researcher at Colorado State University assisting the U.S. Forest Service in a study to learn about the outdoor recreation activities of people along the Front Range. The study requires that we speak to a member of the household who is at least 18 years old. Who would that be?

{Reintroduce yourself and your purpose to respondent if necessary}.

We would like to ask you a few questions as part of this study. Would you be willing to take a couple of minutes to answer these questions?

First, we would like to find out about your participation in outdoor recreation in National Forests. We define outdoor recreation as travelling away from your home for the purpose of recreating in a natural area. A few examples of such recreation might be camping, hiking, fishing, downhill or x-country skiing, hunting, and viewing wildlife and scenery.

1. Do you participitate in outdoor recreation? ___yes ___no {IF NO, go to question 4}
{IF YES}, Do you participate continuously throughout the year or are you more active during certain times of the year?
_____ continuously
_____ more active at certain times {if this answer, ask "what months are you most active in?" [more than one season may apply]}
_____Spring _____Summer _____Fall _____Winter

2. During the seasons you are most active, how many days per month do you participate in outdoor recreation activities?

_____ days per month

3. What is the typical length of an outdoor recreation trip for you?

4. I am now going to ask you some questions about 3 forest management issues regarding the Arapaho & Roosevelt National Forests and the Pawnee National Grassland.

The first issue involves whether the Forest Service should manage areas that have currently few or no roads in them for production such as timber harvest, oil and gas exploration and motorized recreation or if they should leave these areas unroaded and left alone.

Would managing **ARNF & PNG** unroaded areas primarily for "production" be GOOD or BAD, or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5
Would leaving **ARNF & PNG** unroaded areas primarily "as is" be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5
Would maintaining an equal balance on the **ARNF & PNG** between managing unroaded areas for "production" and leaving them "as is" be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5

Given the choice between one of the three, which of the following management strategies for the Arapaho & Roosevelt National Forests and Pawnee National Grassland would you support (choose only one)?

_____manage unroaded areas primarily for "production".
_____leave unroaded areas primarily "as is".
_____maintain an equal balance between managing unroaded areas for "production" and leaving them "as is".

The next issue involves whether the Forest Service should protect forests with old-growth timber or use old-growth forests for timber harvesting.

Would managing old-growth forests in the **ARNF** primarily for protection be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5

Would managing old-growth forests in the **ARNF** primarily for timber harvest be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5
Would maintaining an equal balance **on the ARNF** between protecting some old-growth forests and using some for timber harvest be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5

Given the choice between one of the three, which of the following management strategies for the Arapaho & Roosevelt National Forests would you support (choose only one)?

_____primarily protect old-growth forests.
_____use old-growth forests primarily for timber harvest.
_____maintain an equal balance between protecting old-growth forests and using some for timber harvest.

The final issue involves whether the Forest Service should continue current levels of livestock grazing on Forest Lands or decrease the amount of grazing allowed.

Would continuing current levels of grazing on rangelands in the **ARNF & PNG** be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5
Would allowing less grazing on rangelands in the **ARNF & PNG** be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5
Would eliminating grazing on rangelands in the **ARNF & PNG** be GOOD, BAD or NEITHER?	Extremely Good	Moderately Good	Neither	Moderately Bad	Extremely Bad
On a scale of 1 to 5, how CERTAIN are you of that attitude?	1	2	3	4	5

Given the choice between one or the other, which of the following management strategies for the Arapaho & Roosevelt National Forests and the Pawnee National Grassland would you support (choose only one)?

_____continue current grazing levels on rangelands.
_____allow less grazing on rangelands.
_____eliminate grazing on rangelands .

That is all the questions I have right now. I would also like to mail a questionnaire to you regarding more about your attitudes toward various forest management issues such as timber harvesting, grazing and outdoor recreation. Although this mailed questionnaire will take you about 1/2 hour to complete, you are one of a very few people we are asking information from, therefore your response is very important to us. Also, your responses would remain confidential. Would you be willing to complete such a questionnaire and return it to us as soon as possible?
Address:

Thank you very much for your help!

ATTITUDES TOWARD PUBLIC USES OF THE ARAPAHO & ROOSEVELT NATIONAL FORESTS AND PAWNEE NATIONAL GRASSLAND

1992

Colorado State University

Colorado State University

Department of
Recreation Resources
and Landscape Architecture
College of Natural Resources
Fort Collins, Colorado 80523
(303) 491-6591
FAX: (303) 491-2255

April 15, 1992

Dear Respondent:

Thank you very much for participating in our telephone survey about your outdoor recreation activities. Your input is very valuable to us.

As you may remember, per the phone conversation with us, you agreed to complete a second survey which is enclosed. In conjunction with the U.S. Forest Service, we are interested in learning about your attitudes toward various forest management issues. Toward this end, please complete the enclosed questionnaire and return it in the self addressed stamped envelope we have provided. Since you are one of a very few people we are requesting information from, your response is very important.

Please accept the map of the Arapaho & Roosevelt National Forests, which we have enclosed, as a memento of our appreciation for your help. Thank you very much.

Sincerely,

Alan D. Bright
Graduate Student
enclosures

ATTITUDES TOWARD PUBLIC USES OF THE ARAPAHO & ROOSEVELT NATIONAL FORESTS AND PAWNEE NATIONAL GRASSLAND

SECTION I. In this first section, we are interested in finding out what outdoor recreation activities you participate in, where you participate in them and what types of facilities and settings you prefer to see on an outdoor recreation trip.

1. Please check which of the following outdoor recreation activities you participated in at least once in the past 12 months *(check all that apply)*.

_____camping	_____off-highway vehicle use	_____outdoor photography	_____backpacking
_____picnicking	_____auto sightseeing	_____day hiking	_____viewing wildlife
_____downhill skiing	_____fishing	_____bicycling	_____cross country skiing
_____hunting	_____mountain climbing	_____birdwatching	_____horseback riding
_____rock climbing	_____swimming	_____motor boating	_____canoeing or kayaking

_____other (please describe)_____

2. When participating in outdoor recreation activities, what lodging do you typically use? *(check one response)*.

_____no lodging, day trip only _____friends/relatives _____resort/hotel _____private campground
_____National Forest campground _____other public campground _____dispersed camping

If you typically stay in a campground, what type of shelter do you use?

_____tent _____Recreation Vehicle (RV) _____other(specify)_____

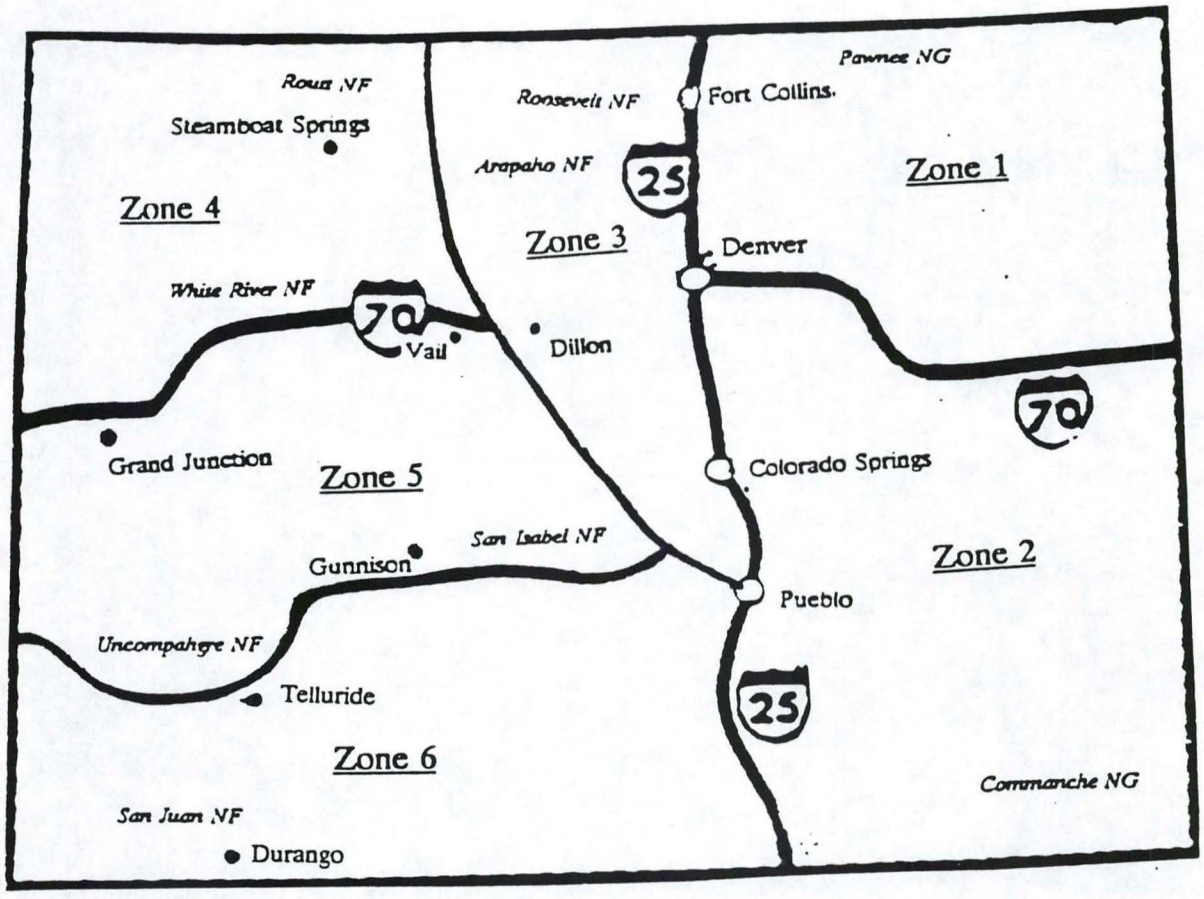
3. I am going to list several possible sources of information about places to recreate in the out of doors. Please tell me if you "frequently", "occasionally", or "never" use that source when deciding where to participate in outdoor recreation *(check your response for each source)*.

friends or relatives	___frequently	___occasionally	___never
newspaper	___frequently	___occasionally	___never
magazines	___frequently	___occasionally	___never
guidebooks	___frequently	___occasionally	___never
brochures	___frequently	___occasionally	___never
television	___frequently	___occasionally	___never
radio	___frequently	___occasionally	___never
Public agency office	___frequently	___occasionally	___never

4. On the facing page is a map of Colorado, divided into six zones. Please indicate **(a)** the zones which you have visited for the purpose of outdoor recreation and **(b)** the approximate number of times you visited for the purpose of outdoor recreation in the past 12 months *(check your response in **(a)** and **(b)**)*.

	(a) Visited? x = yes	**(b)** How many times in the past 12 months?				
Zone 1	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times
Zone 2	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times
Zone 3	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times
Zone 4	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times
Zone 5	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times
Zone 6	_____	___1-3 times	___4-7 times	___8-10 times	___11-15 times	___16 or more times

Which zone do you live in?_____



Zone 1 -- Northeast Colorado; bounded by I-25 to the west and I-70 to the south. Includes the Pawnee National Grassland.

Zone 2 -- Southeast Colorado; bounded by I-25 to the west and I-70 to the north. Includes the Comanche National Grassland.

Zone 3 -- North central Colorado; bounded by I-25 to the east, angling north from Pueblo. Includes the Roosevelt, Arapaho and Pike National Forests.

Zone 4 -- Northwest Colorado; bounded by I-70 to the south and Zone 3 to the east. Includes the west portion of Routt National Forest and the north portion of White River National Forest.

Zone 5 -- West central Colorado; bounded by I-70 to the north, US 50 to the south and Zone 3 to the east. Includes the southern portion of White River National Forest, the northern portions of the Gunnison and Uncompahgre National Forests, and the San Isabel National Forest.

Zone 6 -- Southwest Colorado; bounded by US 50 to the north and Zones 2 and 3 to the east. Includes the southern portions of Uncompahgre and Gunnison National Forests, the San Juan National Forest and the Rio Grande National Forest.

5. We are interested in finding out which types of recreation facilities are desireable and available where you participate in outdoor recreation activities. Based on the outdoor recreation activities you prefer to do while on public forest lands, please rate **(a)** the **desirability** of the following items when you participate in outdoor recreation and **(b)** the **availability** of these items where you participate in outdoor recreation *(circle your responses in (a) and (b))*.

undeveloped campsites (used as a campsite, but there are no facilities present)

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

developed campgrounds

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

metal fire rings or charcoal grills

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

picnic tables for each campsite

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

water pumps for drinking and cooking

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

hot shower facilities

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

outhouse style toilet facilities

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

flush toilet facilities

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

garbage cans/dumpsters

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

group shelters and facilities

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

well maintained trails

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

scenic overlooks and pull-offs

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

nearby streams and lakes

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

barrier-free access for disabled visitors in the recreation area

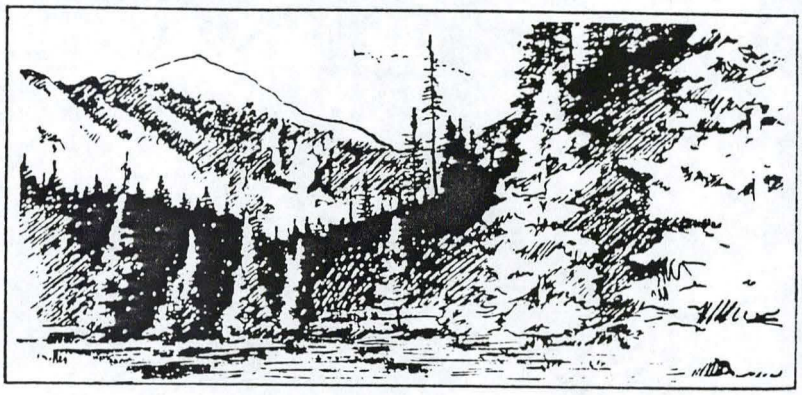
a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

clear directional signs to recreation areas

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

Primitive Setting

--very remote places at least 3 miles from developed roadways
--primitive foot trails exist and no motorized recreational use of any kind is possible
--few or no human-made physical structures exist
--there are very few other people, both on the trail and at your campsite

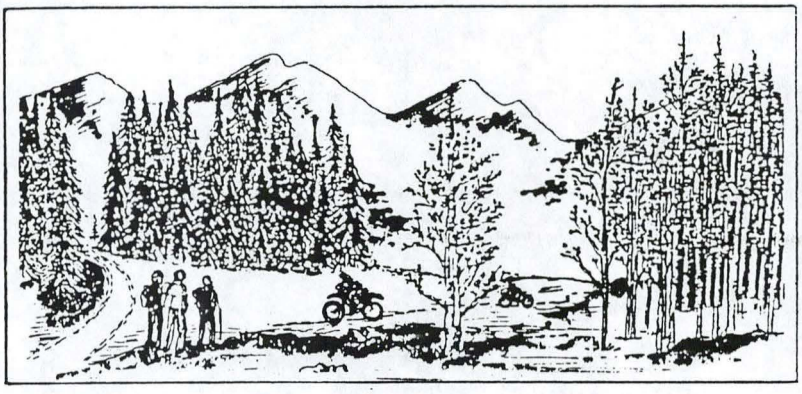


Semi-primitive Nonmotorized Setting

--remote places at least 1/2 mile from developed roadways
--only primitive trails exist and no motorized recreational use of any kind is allowed
--few human-made physical structures exist
--there are few other people, but probably more than in the primitive setting

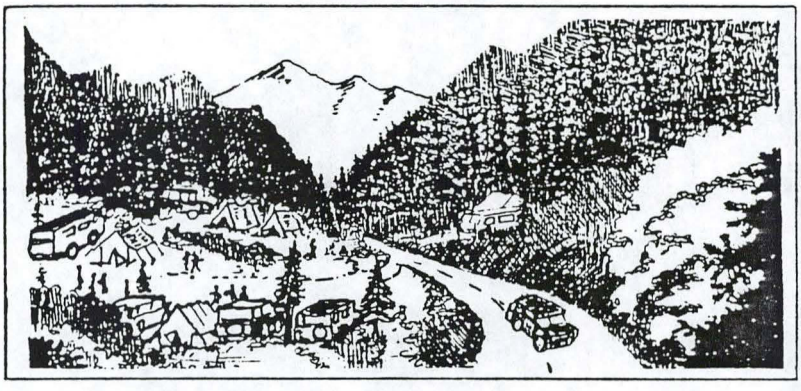
Semi-primitive Motorized Setting

--less than 1/2 mile from developed roadways
--primitive roads and trails exist, allowing motorized recreation such as motorcycles and 3-wheel off-highway vehicles (OHV)
--few human-made physical structures exist
--there are few other people, but probably more than in the primitive setting



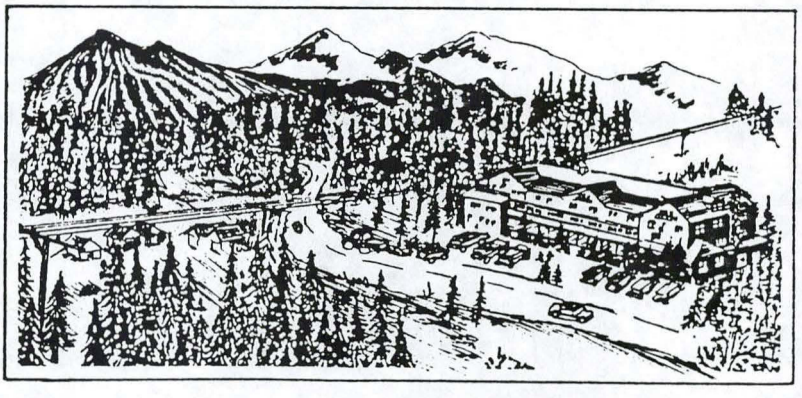
Roaded Natural Setting

--some developed roadways exist, allowing for motorized travel and recreation use
--human-made physical structures exist for visitor comfort
--there are several people present on the trail, at the campsite, and on developed roads



Rural Setting

--developed roadways are predominant throughout the area
--human-made physical structures such as rural residences, power lines, local ski areas, minor resorts and other developed recreation sites exist
--Many other people are present on developed roads and in recreation areas



footbridges for crossing streams

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

maps/guidebooks for recreation area

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

educational signs and exhibits along trails

a.		extremely undesirable	moderately undesirable	neither	moderately desirable	extremely desirable
b.	don't know	not at all available	somewhat available	moderately available	very available	extremely available

SECTION II. In this next section, we would like to learn about the types of recreation settings that you prefer and the extent that you believe a specific setting is available in Colorado. On the facing page, five recreation settings based on the characteristics of the area are described along with sketches of each to help you visualize this setting. Please read each one and answer the following two questions regarding the extent to which you recreate in such a setting and prefer each setting.

1. Of the 5 settings; **primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural,** and **rural,** rank the settings in order of the number of times you generally recreate in that setting, with "1" indicating the most often used, and "5" indicating the least often used.

_____primitive _____semiprimitive nonmotorized _____semiprimitive motorized
_____roaded natural _____rural

2. Of the same settings; please rank the settings in order of the extent to which you prefer that setting, with "1" representing the most preferred setting and "5" representing the least preferred setting.

_____primitive _____semiprimitive nonmotorized _____semiprimitive motorized
_____roaded natural _____rural

SECTION III. In this section, we would like to find out the nature of your experience with Forest Service employees while participating in outdoor recreation, and the extent of your involvement in forest management issues.

1. Indicate the extent you agree, disagree or neither agree or disagree with the following statements regarding your experience with Forest Service employees while recreating in the outdoors *(circle your response).*

I enjoy seeing Forest Service employees	Strongly Agree	Moderately Agree	Neither	Moderately Disagree	Strongly Disagree
Forest Service employees appear quite knowledgeable about management of the area	Strongly Agree	Moderately Agree	Neither	Moderately Disagree	Strongly Disagree
Forest Service employees tend to impose themselves on recreationists	Strongly Agree	Moderately Agree	Neither	Moderately Disagree	Strongly Disagree
I prefer not to see Forest Service employees	Strongly Agree	Moderately Agree	Neither	Moderately Disagree	Strongly Disagree
I very seldom see Forest Service employees	Strongly Agree	Moderately Agree	Neither	Moderately Disagree	Strongly Disagree

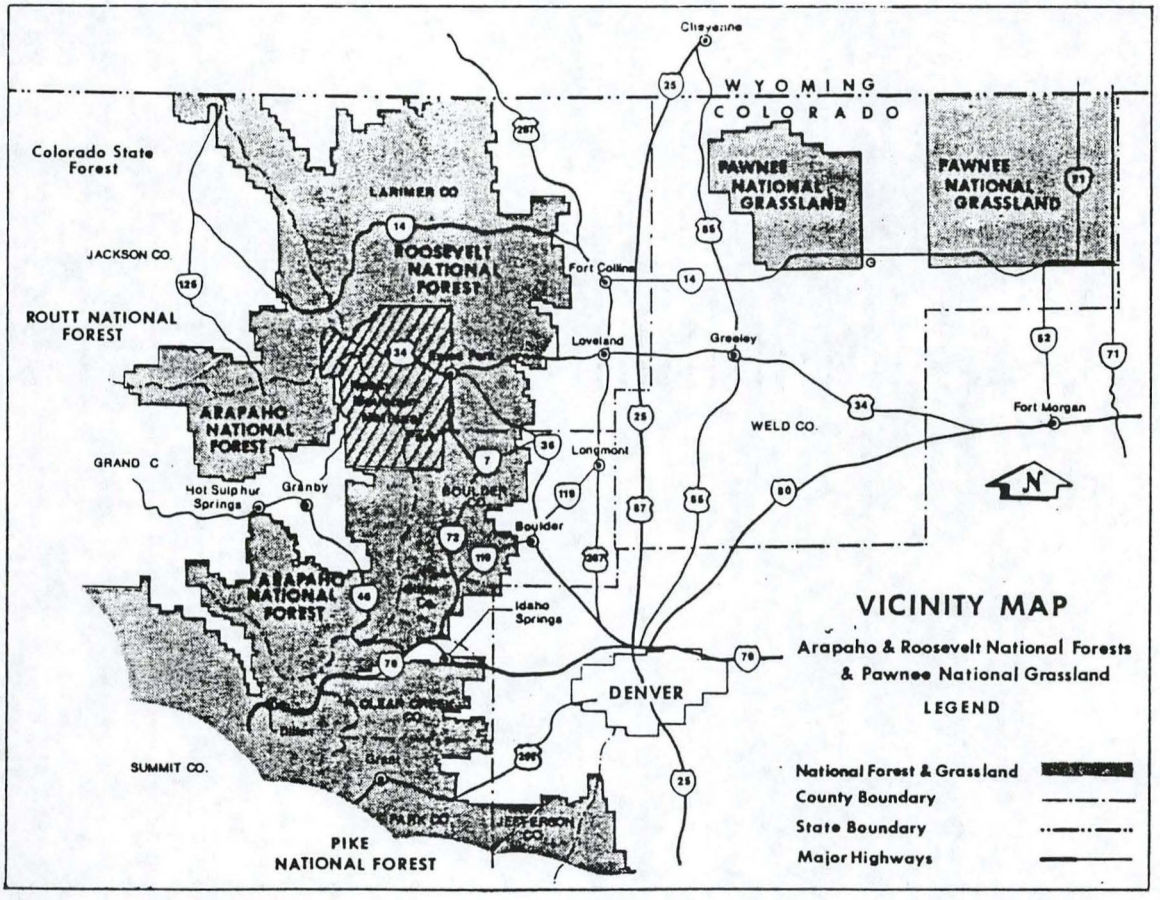
2. Do you belong to any environmental organizations? _____yes _____no (IF NO, skip to Section IV)

IF YES, indicate below **(a)** which of the following organizations you belong to, and **(b)** how active you perceive yourself to be in those you belong to *(check all that apply in **(a)**; check your response in **(b)**)?*

	(a) Member? *x = yes*	(b) How active are you? *(check your response)*				
The National Wildlife Federation	_____	___not at all	___slightly	___moderately	___very	___extremely
The Sierra Club	_____	___not at all	___slightly	___moderately	___very	___extremely
Greenpeace	_____	___not at all	___slightly	___moderately	___very	___extremely
The Audubon Society	_____	___not at all	___slightly	___moderately	___very	___extremely
Colorado Environmental Coalition	_____	___not at all	___slightly	___moderately	___very	___extremely
Colorado Mountain Club	_____	___not at all	___slightly	___moderately	___very	___extremely
Trout Unlimited	_____	___not at all	___slightly	___moderately	___very	___extremely
Others (identify)_____		___not at all	___slightly	___moderately	___very	___extremely
Others (identify)_____		___not at all	___slightly	___moderately	___very	___extremely

SECTION IV. In this section we are interested in learning how you feel about various forest management issues. We have provided brief descriptions of 8 issues along with reasons for and against various management strategies under each issue. Please read the following issues and answer the few questions which follow each of them. Your input on these issues is one of many factors that will be considered in determining the direction which management of the Arapaho & Roosevelt National Forests and Pawnee National Grassland should take.

Below is a map showing the location of the Arapaho & Roosevelt National Forests and the Pawnee National Grassland in relation to the Front Range.



Motorized versus nonmotorized recreation

There is considerable controversy regarding the merits of motorized (automobiles, off-highway vehicles) and nonmotorized (hiking, mountain biking, horseback riding) uses of the Arapaho & Roosevelt National Forests **(ARNF)** and the Pawnee National Grassland **(PNG)**. At one end of the spectrum are those persons who demand primitive recreation opportunities in wilderness or unroaded areas with no contact with motorized uses. On the other hand, there are persons who desire backcountry recreation while still able to travel by automobile or other motorized vehicles.

Some people believe we should emphasize motorized recreation opportunities because:

a. Driving for pleasure is the most frequent recreation on the Forests and Grasslands.
b. It will provide for recreation involving four-wheel drive and off-highway vehicles, such as ATVs and motorcycles.
c. It allows persons with disabilities and older persons an opportunity to enjoy the wilderness.

Some people believe we should emphasize nonmotorized recreation opportunities because:

d. It will reduce the need for more roads to be developed.
e. It will reduce the impact of recreation on wildlife, soils and vegetation.
f. It will enhance the recreation experience of those who prefer nonmotorized recreation.

Please circle your response to the following questions.

1. On a scale of 1 to 5, how IMPORTANT to you is the issue of Motorized vs Nonmotorized Recreation on public lands? *(circle a number)* (Not Important): 1 2 3 4 5 :(Very Important)

2. Would emphasizing motorized recreation in the **ARNF & PNG** be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

3. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

4. Would emphasizing nonmotorized recreation in the **ARNF & PNG** be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

5. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

6. Which of the following management strategies for the Arapaho & Roosevelt National Forests would you support *(check one answer)*?

____emphasize motorized recreation.
____emphasize nonmotorized recreation.

7. Now, return to the six statements above regarding motorized versus nonmotorized recreation in the Arapaho & Roosevelt National Forests and Pawnee National Grassland. In the spaces below, rate the five statements which are the most **important to you** in determining your attitude toward whether to emphasize motorized or nonmotorized recreation. For example, if statement "a" is the most important, "c" is the second most important, "b" is the third most important, "e" is the fourth most important and "d" is the fifth most important, place those letters in the appropriate space below.

For example, Sam B. believes that statement "a" is the most important, "d" is the second most important, "b" is the third most important, "e" is the fourth most important, and "c" is the fifth most important. He responds to this question by placing these letters in the appropriate spaces as follows:

EXAMPLE ONLY

1st most important	2nd most important	3rd most important	4th most important	5th most important
a	d	b	e	c

1st most important	2nd most important	3rd most important	4th most important	5th most important
_____	_____	_____	_____	_____

Unroaded areas

There are 1.5 million acres on the Arapaho & Roosevelt National Forests **(ARNF)** and the Pawnee National Grassland **(PNG)**. Approximately 300,000 acres are considered unroaded. Unroaded areas are areas where only trails or old, unusable roads are present. Some of the unroaded areas are above timberline, some are shortgrass prairies, and others are forested areas.

There is considerable public controversy about the future management of unroaded areas. Some people believe that these areas should be available for a wide range of "production", including timber harvest, grazing, oil and gas exploration, and developed and motorized recreation opportunities. Others believe that leaving unroaded areas undisturbed helps to retain old growth forests, maintain biological diversity, and provide for more primitive recreation opportunities.

Some people believe we should manage unroaded areas primarily for "production" because:

a. It will provide rural jobs associated with logging and the woods products industry.
b. It will increase the habitat available for some types of wildlife species.
c. It will lessen some of the risks of wildfire and insect and disease infestations.
d. It will facilitate opportunities for oil and gas exploration.
e. It will increase opportunities for off-highway vehicular recreation.

Some people believe we should leave unroaded areas primarily "as is" because:

f. It will save money.
g. Some types of wildlife need this type of habitat.
h. It will preserve old growth forests as a component of the entire forest ecosystem.
i. It will maintain resource management options for future generations.
j. They provide recreation opportunities that emphasize naturalness and solitude.

Please circle your response to the following questions.

1. On a scale of 1 to 5, how IMPORTANT to you is the issue of Unroaded Areas on public lands? *(circle a number)* (Not Important): 1 2 3 4 5 :(Very Important)

2. Would managing **ARNF & PNG** unroaded areas primarily for "production" be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

3. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

4. Would leaving **ARNF & PNG** unroaded areas primarily "as is" be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

5. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

6. Would maintaining an equal balance on the **ARNF & PNG** between managing unroaded areas for "production" and leaving them "as is" be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

7. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

8. Given the choice between one of the three, which of the following management strategies for the Arapaho & Roosevelt National Forests and Pawnee National Grassland would you support *(check one answer)*?

_____manage unroaded areas primarily for "production".
_____leave unroaded areas primarily "as is".
_____maintain an equal balance between managing unroaded areas for "production" and leaving them "as is".

9. Now, return to the ten statements above regarding unroaded areas on the **ARNF & PNG**. In the spaces below, rate the five statements which are the most **important to you** in determining your attitude toward whether unroaded areas should be developed for "production" or left "as is". For example, if statement "a" is the most important, "c" is the second most important, "b" is the third most important, "e" is the fourth most important and "d" is the fifth most important, place those letters in the appropriate space below.

1st most important	2nd most important	3rd most important	4th most important	5th most important
_____	_____	_____	_____	_____

Old-growth forests

Old-growth forests are defined by professional foresters as areas where there are: (a) two or more tree species (b) of many different ages and sizes, (c) several large cone-bearing trees such as evergreen trees which are at least 200 years old, (d) several large standing dead trees per acre and (e) several tons of large fallen trees per acre.

Management of old-growth in the Arapaho & Roosevelt National Forests **(ARNF)** is a controversial subject regarding how much old-growth there should be; where the old-growth should be located; and what the trade-offs are between maintaining old-growth forests versus use of old-growth areas for developed motorized recreation, timber harvest and oil and gas exploration.

Some people believe we should protect old-growth forests because:

a. It will allow fewer trees to be harvested for timber.
b. It will maintain a greater diversity of wildlife species that need old-growth forests.
c. It will reduce the amount of soil erosion caused by logging roads.
d. There is not enough old-growth forests left.
e. There are aesthetic and spiritual values to protecting old-growth forests.

Some people believe we should use old-growth forests for timber harvest because:

f. Some old-growth stands have deteriorated and will rapidly lose their economic value for timber production if not harvested.
g. Old-growth can provide a higher volume per acre of timber available for homes, furniture and raw materials.
h. It will decrease atmospheric pollution from carbon-dioxide.
i. It will allow for "productive" uses of the forest areas, such as timber harvest, oil and gas exploration and developed recreation.
j. Many acres of forest land are already protected as wilderness.

Please circle your response to the following questions.

1. On a scale of 1 to 5, how IMPORTANT to you is the issue of Old Growth Forests on public lands? *(circle a number)* (Not Important): 1 2 3 4 5 :(Very Important)

2. Would managing old-growth forests in the **ARNF** primarily for protection be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

3. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

4. Would managing old-growth forests in the **ARNF** primarily for timber harvest be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

5. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

6. Would maintaining an equal balance on the **ARNF** between protecting some old-growth forests and using some for timber harvest be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

7. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

8. Given the choice between one of the three, which of the following management strategies for the Arapaho & Roosevelt National Forests would you support *(check one answer)*?

_____primarily protect old-growth forests.
_____use old-growth forests primarily for timber harvest.
_____maintain an equal balance between protecting old-growth forests and using some for timber harvest.

9. Now, return to the ten statements above regarding old-growth in the Arapaho & Roosevelt National Forests. In the spaces below, rate the five statements which are the most **important to you** in determining whether old-growth forests should be protected or used for timber harvest. For example, if statement "a" is the most important, "c" is the second most important, "b" is the third most important, "e" is the fourth most important and "d" is the fifth most important, place those letters in the appropriate space below.

1st most important	2nd most important	3rd most important	4th most important	5th most important
_____	_____	_____	_____	_____

Timber

By federal law and mandate, National Forests are managed for many different types of uses. One of these uses is timber harvest to help meet society's need for building supplies and paper products. About one-third of the Arapaho & Roosevelt National Forests (ARNF) or 350,000 acres were considered available for timber harvest under the 1984 Forest Plan. During the last three years, the ARNF has harvested 1,500 acres of trees each year, but the plan allows for harvest of 4,500 acres each year.

Some people believe we should maintain current timber harvest levels (1,500 acres per year) because:

a. It will allow the Forest Service to set aside more old growth trees.
b. Wildlife species dependent on older trees, such as the pinemarten and flammulated owl, would benefit from lower harvest levels.
c. The natural beauty of the forest would receive greater management emphasis.
d. Recreationists on the forest would find a more natural setting.

Some people believe we should allow harvest of higher levels of timber (4,500 acres per year) because:

e. It will create jobs for rural communities.
f. It will decrease some of the risks associated with wildfire and insect/disease infestations.
g. Wildlife species dependent on younger forests would benefit from higher harvest levels.
h. Roads associated with timber harvest could improve and/or increase motorized recreation opportunities.
i. It more adequately meets the processing capacity of the local mills.

Please circle your response to the following questions.

1. On a scale of 1 to 5, how IMPORTANT to you is the issue of Timber Harvest on public lands? *(circle a number)* (Not Important): 1 2 3 4 5 :(Very Important)

2. Would increasing timber harvest levels in the **ARNF** to 4,500 acres each year be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

3. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

4. Would keeping timber harvest in the **ARNF** at current levels of 1,500 acres each year be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

5. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

6. Would decreasing timber harvest levels in the **ARNF** to below 1,500 acres each year be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

7. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

8. Given the choice of one of the three, which of the following management strategies for the Arapaho & Roosevelt National Forests would you support *(check one answer)*?

_____maintain timber harvest at current levels of 1,500 acres per year.
_____increase timber harvest levels to 4,500 acreas per year.
_____decrease timber harvest levels to below current levels.

9. Now, return to the nine statements above regarding timber harvest in the Arapaho & Roosevelt National Forests. In the spaces below, rate the five statements which are the most **important to you** in determining your attitude toward the appropriate timber harvest level. For example, if statement "a" is the most important, "c" is the second most important, "b" is the third most important, "e" is the fourth most important and "d" is the fifth most important, place those letters in the appropriate space below.

1st most important	2nd most important	3rd most important	4th most important	5th most important
_____	_____	_____	_____	_____

Grazing

Public concern with condition of rangelands such as those on the Arapaho & Roosevelt National Forests **(ARNF)** and the Pawnee National Grassland **(PNG)** has recently increased. Of primary interest is the effect of grazing on the ecosystem of rangelands, particularly in areas near rivers, streams or lakes. There is also concern regarding the effect of grazing on recreation opportunities that are available in a natural area. There is a perception by some people that grazing fees imposed on ranchers are too low and that ranchers are receiving a government subsidy.

Some people believe we should continue current levels of grazing because:

a. It produces revenue for the Federal Treasury.
b. It is a long established use which ranchers with proper permits depend on.
c. It promotes rural community stability and economic benefits to local residents and communities.
d. It produces red meat used by most of the public.

Some people believe we should allow less grazing because:

e. It causes ecological damage to the forest and grassland ecosystems.
f. It favors cattle at the expense of fish and wildlife.
g. It is not a cost-effective program.
h. It will mean more vacant land available for developing recreation opportunities.

Please circle your response to the following questions.

1. On a scale of 1 to 5, how IMPORTANT to you is the issue of Grazing on public lands? *(circle a number)* (Not Important): 1 2 3 4 5 :(Very Important)

2. Would continuing current levels of grazing on rangelands in the **ARNF & PNG** be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

3. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

4. Would allowing less grazing on rangelands in the **ARNF & PNG** be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

5. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

6. Would eliminating grazing on rangelands in the **ARNF & PNG** be GOOD or BAD? Extremely Good / Moderately Good / Neither / Moderately Bad / Extremely Bad

7. On a scale of 1 to 5, how CERTAIN are you of that attitude? *(circle a number)* (Not Certain): 1 2 3 4 5 :(Very Certain)

8. Given the choice between one or the other, which of the following management strategies for the Arapaho & Roosevelt National Forests and the Pawnee National Grassland would you support *(check one answer)*?

_____continue current grazing levels on rangelands.
_____allow less grazing on rangelands.
_____eliminate grazing on rangelands .

9. Now, return to the eight statements above regarding grazing on rangeland in the Arapaho & Roosevelt National Forests and Pawnee National Grassland. In the spaces below, rate the five statements which are the most **important to you** in determining your attitude toward whether grazing should be increased on rangelands. For example, if statement "a" is the most important, "c" is the second most important, "b" is the third most important, "e" is the fourth most important and "d" is the fifth most important, place those letters in the appropriate space below.

1st most important	2nd most important	3rd most important	4th most important	5th most important
_____	_____	_____	_____	_____

SECTION V. Background information *(This information will remain confidential)*

10. Gender *(check your response)*: ____Male ____Female 11. Age ____years

12. Race *(check your response)*:

____White, not of hispanic origin
____Black, not of hispanic origin
____American Indian or Alaskan Native
____Asian or Pacific Islander
____Other (identify)_____

Hispanic:
____Puerto Rican
____Cuban
____Mexican
____Central American
____South American
____European Spanish

13. Education *(circle the last year completed)*:

0 1 2 3 4 5 6 7 8 {Elementary}
9 10 11 12 {High School or Vocational School}
13 14 15 16 {College or Technical School}
17 18 19 20 21 22 {Post Graduate School}

14. What is your occupation?_____

15. How would you describe your employment *(check all that apply)*:

____Self-Employed
____Employed, full-time
____Employed, part-time
____Student
____Homemaker
____Not Employed
____Retired

16. How would you describe your household *(check your response)*?

____Single adult; no children 18 or under
____Single adult with children 18 or under
____Two adults; no children 18 or under
____Two adults with children 18 or under
____More than 2 adults; no children 18 or under
____More than 2 adults with children 18 or under

17. What was your approximate annual household income in 1991 before taxes *(check your response)*?

____less than $15,000
____$15,000 - $29,999
____$30,000 - $44,999
____$45,000 - $59,999
____$60,000 - $74,999
____$75,000 - $89,999
____$90,000 - $104,999
____$105,000 - $119,999
____$120,000 and over

18. What is the size of community that you currently reside in *(check your response)*?

____farm or rural
____major metropolitan area, population over 300,000
____suburb of major metropolitan area
____city (nonsuburb), population 100,000 to 300,000
____city (nonsuburb), population 50,000 to 100,000
____town (nonsuburb), population 10,000 to 50,000
____town (nonsuburb), population under 10,000

Thank you very much for participating in our study!